

Water Quality Goal Implementation Team Meeting

Meeting Theme: A Path Forward for Developing the Phase III WIP Planning Targets

September 25 – 26, 2017 / Annapolis, MD

Summary of Actions and Decisions:

Current Status of the Phase 6 Suite of Modeling Tools:

ACTION: The Modeling Workgroup will do additional analysis on the relative effectiveness in Phase 6. These analyses will include running the Phase III WIP planning targets on Phase 6 relative effectiveness with current conditions to assign loads to each state basin. The presentation of this analysis will also include an explanation of the changes in relative effectiveness due to recalibration of the Phase 6 Watershed Model and WQSTM, and the expected effect on relative level of effort from jurisdictional basins from changes to the model. Additional investigation into why WIP attainment of planning targets decreased significantly for WV, NY, MD, and DC and increased significantly for DE between Phase 5 and Phase 6 will also be presented to the WQGIT.

ACTION: The CBPO Modeling Team will analyze changes to the assimilative capacity of the Bay in the transition to the recalibrated Phase 6 Watershed Model and Phase 6 Water Quality Sediment Transport Model. The CBPO Modeling Team will also analyze changes to the Bay's assimilative capacity with the addition and removal of loads from the Conowingo Dam and Reservoir and 205 projected climate change impacts to the Bay. This will result in 6 different scenarios of assimilative capacity: Conowingo on; Conowingo off; 2025 climate change on, 2025 climate change off, both Conowingo and climate change on, and both Conowingo and climate change off. The results of these analyses will be presented to the WQGIT at upcoming meetings for review in preparation for making final recommendations on the draft Phase III WIP planning targets development and Phase III WIP development process.

Establishing a Scenario Year for the Phase III WIP Planning Targets:

DECISION: The WQGIT approved using 2010 as the scenario year to establish the Phase III WIP planning targets. This recommendation will be presented to the PSC for approval at the October 31 PSC meeting.

Accounting for the Effect of Conowingo Dam and Reservoir on Bay Water Quality:

DECISION: The WQGIT will recommend to the PSC to begin addressing additional loads from the Conowingo Dam infill now, with the knowledge that dynamic equilibrium conditions are already occurring, and with consideration that Partnership decisions should inform the ongoing recertification process between Maryland and Exelon through section 401 of the Clean Water Act. However, practicable implementation levels with regard to E3 need to be considered, along with diminishing efficiency in allocating load to additional jurisdictions. With this in mind, the "Effective Basins" scenario and the "Susquehanna Only" scenario were determined to be the most effective and efficient strategies. Additional strategies include acknowledging that the load will be addressed through various efforts,

potentially by assigning it as a local planning target and including Exelon in the implementation discussions.

ACTION: The Modeling Workgroup will conduct additional analysis on assimilative capacity in the Bay with and without the Conowingo load distribution scenarios, and will develop explanatory materials to represent the options for distributing additional Conowingo phosphorus and sediment loads in future presentations to the WQGIT and PSC.

DECISION: The WQGIT will recommend to the PSC to address Conowingo loads separately as a special case shared between the Susquehanna and most effective basins in the watershed, and additional loads from Conowingo will not be included in the Phase III planning targets.

DECISION: If the PSC does not approve the special cases approach for addressing additional Conowingo phosphorus and sediment loads is not approved, then the WQGIT will recommend that consideration of the “All Basins” and “Susquehanna + MD + VA” responsibility scenarios be removed, and that the PSC consider only the “Susquehanna + Most Effective Basins” scenario. However, all scenario options will be shown to the PSC for comparative purposes.

DECISION: If the additional Conowingo loads will be included in the draft planning targets, the WQGIT will recommend using the same effort/effectiveness curve for calculating wastewater targets that was used to establish the wastewater targets in the 2010 TMDL.

DECISION: The WQGIT recommended to the PSC that additional loads from the Conowingo infill should be addressed now, given the current knowledge of Conowingo as an already-changed condition. Partnership decisions made now will also inform the current Clean Water Act 401 certification discussions between Maryland and Exelon.

ACTION: CBP Modeling Team will provide information on how the relative effectiveness of each basin changes between the Phase 5.3.2 and Phase 6 models. One suggested method is to provide a relative ranking of Phase 5.3.2 effectiveness values on graphics with Phase 6 effectiveness values.

ACTION: The CBP Modeling Team will run a ‘necessary reduction beyond WIPs’ scenario with Conowingo loads at 1990s conditions.

ACTION: The CBP Modeling Team will run a scenario with 1990’s Conowingo condition and relative effectiveness values.

ACTION: The CBP Modeling Team will develop two relative effectiveness options to look at for scenarios: 1) relative effectiveness of Conowingo operating under current understanding, and 2) using 1990’s understanding of Conowingo and relative effectiveness of Phase 6 model.

Potential Use of 2025 Growth Projection Scenarios in the Phase III WIPs:

DECISION: The WQGIT recommended updating the growth projections every 2 years with the best available data to inform the development of milestones.

DECISION: The WQGIT recommended using 2025 growth projections in the development of the Phase III WIPs. The Chesapeake Bay Foundation cited concerns with this recommendation, and abstained from the decision-making.

DECISION: The WQGIT approved the use of the CBLCM and MDP Land Use models to develop the 2025 forecasts for potential use in the Phase III WIPs. This includes the potential to include new, more accurate data if/when it is available during 2-year milestone updates.

DECISION: The WQGIT approved the LUWG recommendation to eliminate the “Historic Trends” scenario, and develop the new “Current Zoning” scenario by November 15, 2017. This would serve as the principle scenario for the 2025 forecasts. The “Current Zoning” scenario will be available in CAST by January 2018.

ACTION: The “Conservation Plus” scenario (formerly “Utopia” scenario) will be completed by Jan 15, and will be available in CAST by March 1. The large data collection effort required to develop the “Zoning Plus” scenario will delay development until later in 2018; “Conservation Plus” was determined to be of higher priority.

ACTION: The CBP Land Data Team will provide information on the total coverage of zoning information informing the Current Zoning Land Use Forecast.

ACTION: The LUWG will continue to develop alternative futures scenarios identified at the June Local Government Advisory Committee Forum. The “Conservation Plus” (formerly “Utopian”) growth scenario will be completed by January 15, 2018, to be incorporated into CAST in March 2018. The “Current Zoning Plus” scenario will require a large data collection effort, and will not be completed until later in 2018.

Options for Factoring Climate Change Impacts and Considerations into the Phase III WIPs:

ACTION: The WQGIT did not reach consensus on a recommendation to the PSC on adopting a climate change policy option for the Phase III WIPs. The WQGIT and the CRWG will revise the policy language for both the quantitative and qualitative policy options and will provide both revised options to the PSC for selection at the December PSC retreat.

ACTION: The WQGIT will also provide the PSC a list of pros and cons for each policy option and recommendations for additional measures the PSC should adopt if the qualitative climate change policy option is selected.

ACTION: The WQGIT proposed the following revision to the quantitative option language: remove the last clause from the quantitative policy option language, to reflect that potential changes in level of effort may not always be increases in level of effort with added climate change projections considered. The WQGIT also proposed a language change in the quantitative policy option to reflect the best available knowledge that some impacts from climate change may be addressed implicitly through changes in assimilative capacity, and some climate change impacts will be addressed explicitly through changes in jurisdictions’ Phase III WIP levels of effort.

ACTION: The WQGIT proposed the following changes to the qualitative policy option language: Element A will be removed from the climate change qualitative option, and will be incorporated into Element B of the qualitative option. The Climate Resiliency Workgroup will revise the climate change policy options and present to the WQGIT for approval at an upcoming conference call.

ACTION: The CBPO Modeling Team will provide jurisdiction-specific climate change projections for 2025, to give each jurisdiction information on how climate change may impact their level of effort in implementing the Phase III WIPs.

DECISION: The WQGIT recommended that if the qualitative option is selected by the PSC, that the PSC also allow jurisdictions to adopt quantitative approaches to address climate change impacts using basin-level projections at the discretion of each jurisdiction.

ACTION: The CBPO Modeling Team will run 2025 climate change scenarios using 0.17 sea level rise, and will present any changes between these projections and projections run on 0.3 m sea level rise to the WQGIT.

Recommendations on the Draft Phase III WIP Planning Targets:

ACTION: The WQGIT will review the findings and products from the CBP Modeling team over the next 6 weeks and will make a recommendation to the PSC on adoption of Phase III WIP Planning Targets at the joint WQGIT/Modeling Team meeting on December 4-5, 2017.

ACTION: The CBPO Modeling Team will do new geographic isolation runs on the recalibrated Phase 6 WQSTM and calculate assimilative capacity of the Bay using the Phase 6 model.

ACTION: The CBPO Modeling Team will investigate the effects on assimilative capacity of 2025 climate change projections and Conowingo inflow conditions at the 1990s and current condition, and will brief the WQGIT on any changes in relative effectiveness, assimilative capacity, and effects on draft planning targets which may arise from these new analyses.

DECISION: The effort/effectiveness curve for point source loads will remain identical with the curve used in establishment of the TMDL. Any additional effort due to changes in the Phase 5 - Phase 6 transition, climate change or Conowingo will be added to the all-else line.

DECISION: The WQGIT will retain the 20% slope between most and least effective basins on the effort/effectiveness graph, in order to assign responsibility for the Phase III WIP planning targets.

ACTION: A briefing on tools available for review of the geographic isolation runs will be provided to the WQGIT at an October conference call.

DECISION: The Phase III WIP planning targets will be calculated with current relative effectiveness values. In order to avoid double-counting Conowingo in both the local area goal and the Phase III WIP planning targets, the difference between 1990s relative effectiveness and current conditions relative effectiveness will be used to subtract out Conowingo loads from basins that are affected by Conowingo.

H. Timeline for Releasing the Draft Phase III WIP Planning Targets:

ACTION: Pending review and concurrence from the CBPO Modeling Team, the WQGIT will recommend a 6 week change in schedule for the release of the final recalibrated Phase 6 suite of modeling tools and key scenario results, recommendations of the draft Phase III WIP planning targets, and jurisdictions' development of the draft Phase III WIPs. The WQGIT will also recommend the PSC October 2017 retreat be moved to December 2017, to allow for the necessary analysis of key scenarios and calculation of draft planning targets options by the CBPO

Modeling Team, and appropriate time for the WQGIT to review the products from the Modeling Team and make recommendations to the PSC on the draft Phase III WIP Planning Targets.

Day One: Monday, September 25

A. Welcome, Introductions and Setting the Stage

Presenters:

- James Davis-Martin, VA DEQ/WQGIT Chair

Materials:

- Attachment A.1: [HYPERLINK "https://www.chesapeakebay.net/channel_files/25453/revisions_to_midpoint_assessment_schedule_psc_approved_4.25.17.pdf"]
- Attachment A.2: [HYPERLINK "https://www.chesapeakebay.net/channel_files/25453/b_-_2017_09_25_wqgit_p6_models_and_pt_methods.pdf"]

Discussion:

- James Davis-Martin made remarks thanking the WQGIT for their work over the last few years on the Mid-Point Assessment.
- James Davis-Martin discussed the current schedule for developing the Phase III WIPs and planning targets, and reminded participants of the meeting that there is flexibility in the schedule to keep reviewing decisions and additional information.

B. Current Status of the Phase 6 Suite of Modeling Tools

Presenters:

- Gary Shenk, USGS/Modeling Workgroup
- Dave Montali, TetraTech/WV Dept. of Environmental Protection/Modeling Workgroup Co-Chair
- Lew Linker, EPA CBPO/Modeling Workgroup Coordinator

Materials:

- Attachment B.1: [HYPERLINK "https://www.chesapeakebay.net/channel_files/25453/b_-_2017_09_25_wqgit_p6_models_and_pt_methods.pdf"]

Discussion:

- Lee Currey summarized the work done to develop and finalize the model. The Phase 6 model is more accurate than Phase 5.3.2, uses a multiple model approach, and is undergoing peer review. Lee also referred to PSC Secretary Grumbles' memo to the WQGIT and emphasized the need to stay on schedule in completing the Midpoint Assessment process.
- Lew Linker: We are updating the model and we want to keep a record of changes that have been made in the model and what still needs to change to pass that information on.

- Linker: We encourage you to ask those why questions as you use these tools and view the results so we can continue improving it. Phase 6 is built on all the work that went into Phase 5.
- Sarah Diebel: Has the WQGIT agreed on a response to Ben Grumbles' memo? I think we should respond to thank him and answer his request.
 - James Davis-Martin concurred.
- Dave Montali summarized the outcomes of the fatal flaw review process over June-July and August 2017. Covered 100+ comments on the model that staff worked through to address. Covered changes made in response to comments. By the end of August, all comments were resolved besides DE's comment regarding whether use of APLE was equitable across land use sectors. MB decision was to continue using APLE as is for now, overruling DE objections. Soil P data will be updated every 2 years during the milestones periods. In that time, we will develop updated standardized data collection and analysis methods, and a proposal for a STAC workshop to recommend methods of representing soil phosphorus in urban land use sectors.
- Nicki Kasi: Is the Phase 6 model not calibrated yet? How can the scenarios be done if the model isn't recalibrated?
 - Gary Shenk: We had a lot of changes to the model with new data, and the timeline was too tight to recalibrate before the meeting today. We have some draft results to look at for this meeting, and we are recalibrating and running scenarios through the recalibrated model starting this week.
 - James Davis-Martin: The numbers we look at today are relative numbers for state basins, and these numbers will change a little bit and likely will affect everybody similarly. We will see final numbers in October before the PSC meeting.
 - Montali: We don't really know how much these numbers will change after recalibration, and this is our first cut and the info is really new.
- Currey: Could you take these draft numbers and compare to observed data for an understanding of the accuracy of the model?
 - Shenk: We did that. The accuracy is a little off, comparable to Phase 5.3.2, and that accuracy will improve after recalibration.
 - Tanya Spano: We don't really know how these numbers will change at the local level with recalibration, though. What if there is a dramatic difference at the fine scale that call into questions the decisions we make at this meeting?
 - Davis-Martin: Our decisions are the policy principles and methods that lead to the numbers, we aren't deciding to accept absolute numbers today.
 - Linker: The big picture is that we have to live with Phase 6 until 2025, so we need to make sure we have the best model we can make at this time so that we are comfortable using it for the next 8 years. We need to be certain that the final numbers we get will hold up under scrutiny until 2025.
- Gary Shenk presented on planning target methodology, starting with allocation guidelines from 2010, using the initial assumption that WIP II loads with Conowingo at 1990 levels is the assimilative capacity of the Bay. Also included determinations of who should contribute the most reductions based on relative effectiveness, relationship between effectiveness and effort, and updated N and P exchange rates for Phase 6.
- Kasi: What is the increased delivery effectiveness is based on?
 - Shenk: these changes are mainly based on changes to the watershed and estuarine model, and we will be digging deeper into the why in the coming weeks.
- Spano: Are these materials on the website now?

- Shenk: These materials are on the [[HYPERLINK "https://www.chesapeakebay.net/what/event/water_quality_goal_team_annual_face_to_face_meeting"](https://www.chesapeakebay.net/what/event/water_quality_goal_team_annual_face_to_face_meeting)] and we can print materials on request for you if you need them.
- Shenk: If your basin is more or less effective, then you are moving on these lines. Nobody will be doing more than 80% of E3 based on previous decisions.
- Spano: The tributaries were distributed on the line for the TMDL. A basin here that's on the blue line has moved on the curve then. There were also groupings of similarly effective basins for the TMDL, are there any changes that would affect those groupings?
 - Shenk: That goes back to a 2003 decision, where there were three tiers of grouped watersheds—that was a preliminary analysis before the TMDL was developed.
 - Spano: The rankings now might be different in Phase 6, and I'd like to see on the graph what the changes are in terms of tiered basins.
- Kasi: Is the 20% slope up for renegotiation?
 - Davis-Martin: That was a pure policy decision. We chose 20% as a compromise between effectiveness and equity. A steeper slope would mean that some tributaries have to do close to E3 and some have to do very little.
 - Nicki Kasi suggested that discussing a new slope option might be a potential decision point when proposing the new planning targets.
 - Kasi: How would permits change on the regulatory side for wastewater and nonpoint sources?
 - Shenk: The higher the basins are on the blue line (higher effectiveness and higher level of effort), the more convergence for wastewater treatment plants and nonpoint sources. That's given as one single value, and it's up to that jurisdiction to determine how they want to distribute those reductions.
- Dianne McNally: The values might change, but is that consistent with the 2010 allocation method? Isn't changing the slope a change in the methodology?
 - Davis-Martin: Yes, but we can make the recommendation to change the methodology if we decide that is the best path forward.
 - Currey: The PSC is the decision maker here, and we can make a recommendation to them but that doesn't mean that the PSC will approve that recommendation. For some context, the 20% rule was based on a lot of trial and error with slope options and the WQGIT decided at the time that 20% was the best compromise after a lot of deliberation.
- Sarah Diebel: I would suggest a graphic with the segment name with an up or down arrow to indicate how the effort/effectiveness relationship is moving for that segment.
- Dave Montali requested to show the before and after from the effort-effectiveness curve for 2010 and the Phase III planning targets.
- Bill Angstadt: How do the changes in effectiveness for BMPs and how that translates to the effectiveness curve for the segments.
 - Matt Johnston: The answer to that includes asking if the locations of where BMPs are most and least effective has changed. It's another analysis based on load delivery changes and DO criteria changes. We are starting to work with PA to do that analysis.
- Dinorah Dalmasy: Has normalization been done for these curves?
 - Shenk: Normalization ensures that we have the same mean in Phase 6 that we did in Phase 5. The averages are the same, but this graph shows if the relative value and relative mean is going up or down.

- Spano: Can you review the changes in methods for Phase 5 and Phase 6?
 - Shenk: In Phase 6 we used the multiple model approach to evaluate delivery and effectiveness. SPARROW allowed us to differentiate where riverine and stream attenuation was happening. We found that impoundments had a different effect on sediment and phosphorus, which enhances our effectiveness analysis in Phase 6.
- MDA (online): How is Conowingo being simulated in this scenario?
 - Shenk: This is based on current understanding through Phase 6, not Phase 5.
- Dave Montali asked how the Phase 5 to Phase 6 changes are represented in slide 36 for above-Conowingo basins.
 - Shenk: The whole average went down, and then above-Conowingo basins came back up based on the current infill conditions.
- McNally: Does that matter with relative effectiveness?
- Shenk: It doesn't matter that it went up or down absolutely, it matters how it moved relatively. That will be a point that comes later, of differences in effectiveness and loads for N and P and how to deal with that in the phase III WIPs.
- Lew Linker described the results from the new Phase 6 model, including how the model handles climate change and Conowingo. Biogeochemistry is also changing based on particulate organic matter, which changes how certain species of organic nutrients are viewed in the model.
- Shenk: I should explain what I meant when I said current loads are based on WIP II and Conowingo in the 1990s. That is the assumed assimilative capacity right now (190 million lbs.), until we can do the calculations on the recalibrated Phase 6 for an updated assimilative capacity.
- Davis-Martin: The assimilative capacity assumption for this meeting is the WIP II values for N and P with Conowingo for 1990s.
- Nicki Kasi asked how that assumption was made for assimilative capacity.
- Montali: The assimilative capacity was 190 million lbs. for N when the TMDL was first done, assuming Con is the same state as 1990s.
- Kasi: if we had done WIP IIs with Conowingo on phase 5, it would have been 209 million lbs?
- Linker: We are aiming for understanding. One of the consequences of the new model is that CB4 hypoxic volume is nearly doubled so that attainment is less for Phase 6 than Phase 5. We need to confirm this result between now and the release of the draft planning targets.
- Sarah Diebel asked for the difference in top and bottom graphs for attainment graphics for CB4.
 - Linker: We will update the graphs accordingly. In the deep water there is a 7% variance with 5% estimated nonattainment, so since we could be off by 7%, we assume that reaches attainment.
 - Montali: In August, Phase 6 behaved like Phase 5, but not anymore.
 - Linker: Right.
 - Rich Batiuk: Bruce Michael with MDNR is observing hypoxia less than expected right now, which is a good sign that what we are doing is having a positive effect.
 - Linker: That's right, and we need to do some more investigation for that. Perhaps a time and space analysis of hypoxia.
- Teresa Koon: Is this based on the 190 million lbs. assimilative capacity?
 - Linker: We are not looking at assimilative capacity; we are just looking at relative response to loads at the moment. We will bring assimilative capacity into this later. The other change we see is from the CRWG for climate change adjustments for 2025. We have a 0.3 m increase in sea level by 2025,

and that improved attainment for 2025 due to mixing and increased precipitation. We estimated the 30-year difference from 1995 to 2025, not from now to 2025, that was a 0.17 m estimate.

- Katherine Antos: By 2025, climate change will help attainment at 0.3-meter sea level rise, but it will hurt attainment at 0.17 m?
 - Linker: That's right.
 - Spano: the 0.17 SLR is less positive than 0.3, that's different from the conclusions you drew at last week's webinar. Other than the sea level rise factor, did anything else change in the climate change projections?
 - Linker: No changes other than sea level rise.
- Hassan Mirsajadi: Could the change in attainment be the result of changes in BMP effectiveness or some other factor than sea level rise?
 - Linker: It's possible, but we need to do more investigation.
 - Lee Currey: What are the variances for CB4?
 - Linker: about 2% uncertainty for that segment.
- Gary Shenk presented the proposed methods and requested WQGIT recommendations for planning target calculations.
- Kasi: Why are the relative effectiveness values different? Wasn't the WIP II supposed to equal the planning target?
 - Shenk: The last time we ran the allocation method was for the TMDL. Then, we took the Phase I WIPs from Phase 5.3 model. In 2011, we ran the Phase I WIPs on the Phase 5.3.2 model, and whatever load was generated from that became your planning target to develop your Phase II WIPs. Now, we are doing the same, running the Phase II WIPs on the Phase 6 model to see how far they will take you.
 - Currey: Look at the bars for progress to see how that changes for Phase 6. This is if we assume the old ranking for relative effectiveness from Phase 5.
- Shenk: We had to make sure that the WIPs are consistent with Phase 6, as many of the WIPs contain BMPs based on Phase 5. There could have been changes through that process that affected the effectiveness values, if BMPs changed in effectiveness from Phase 5 to Phase 6.
- Currey: For MD, it seems like the WIP is less effective in Phase 6 than in Phase 5.3.
- Gary: The Phase 6 BMPs are not necessarily the same practices that went into the Phase II WIPs, since those were based on Phase 5.
 - Jeff Sweeney: WTWG worked to do the translation from Phase 5 to phase 6 for BMPs. For instance, land uses to put BMPs on are very different in Phase 6 than in Phase 5, and we did our best to do the translation accurately.
- Shenk: it is true that N and P exchange rates are changing based on the geo runs. N is more important and P is less important overall now. So states that did more P than N reductions in the Phase II WIPs are faced with a higher level of effort now since P is now less effective.
- Montali: Is that Phase 5 or Phase 6 exchange rates?
 - Shenk: I used the new exchange rates for those.
 - Montali: That gives the impression that WV will have a slightly lower level of effort for P, but that will change again when you add in the Phase 6 relative effectiveness.
- McNally: Why did you use the Phase 5 relative effectiveness again?
 - Shenk: One factor is that you are moving up and down on the hockey stick based on what exchange rate you have. The other factor is that the model will estimate effectiveness differently based on

how you chose to do the N and P exchange, in addition to the variations in how effectiveness for individual BMPs may have changed in the model. Hypothetically, if a state implemented BMPs in their Phase II WIPs that had half the effectiveness in Phase 5 than they have in Phase 6, then the relative effectiveness of their WIP will decrease using the Phase 6 model values.

- Lindsay Thompson: So this figure does not address increased loads from Conowingo?
 - Shenk: Right.
- Rebecca Hanmer: There has to be consideration in this for growths to be offset.
 - Davis-Martin: Growth, climate change, and Conowingo are all going to be presented at this meeting.
- Currey: We'd like more understanding as to why MD has to do more reductions so we can target loads accordingly. Can you say what it was in our WIP II that drove our level of effort higher? What is the percentage on the bottom?
 - Gary: That's absolute load. MD would have to reduce N and P by 10% from the WIP each on top of the Phase II WIPs.
 - Currey: That's a big reduction.
- Katherine Antos: Our relative effectiveness for DC hasn't changed on the hockey stick, so where are those additional loads coming from that we have to be responsible for?
 - Shenk: We really aren't sure why the WIP doesn't get you to the planning target, and it's probably point source related but we still need to do that analysis.
- Spano: The District and MD both have increasing efforts shown here, that's very strange since they don't have a lot in common. What does that analysis include and exclude?
 - Shenk: This does not include geo runs or changes in relative effectiveness, this is just the change in effectiveness of the WIP II run in the Phase 6 model. The question here is, why is your WIP not getting you to the planning targets in Phase 6?
 - Spano: You are just showing the difference between 5 and 6, to show the WIP in both phases and the changes in load across Phase 5 to Phase 6.
 - Shenk: That load changes for a couple reasons: things might be less effective in the model than before, and maybe geo effectiveness has changed, so you have to do more to address the change in effectiveness in each basin.
- George Onyullo: It's very difficult to increase reductions for point sources like Blue Plains, how would we be expected to meet these additional reductions?
 - Shenk: That's why we're having this conversation, we need to understand why we are seeing the numbers that we are for the shortfalls in the Phase II WIPs from Phase 5 to Phase 6.
- Spano: That's the reason why the loads are the currency here. It's strange to see that these numbers are so high—that's not a refinement, that's a really significant change.
- McNally: How did you apply Conowingo to the additional reductions beyond the Phase II WIPs in Phase 6?
 - Shenk: We included it in the equilibrium state was included, and distributed across the watershed.
 - McNally: Just like the TMDL?
 - Shenk: Right.
 - Kasi: Did you run this with Conowingo off to see how it compares?
 - Shenk: No, but we can.
- Montali: What is the 17% increase?
 - Shenk: That is the change to the WIP load additional N and P reductions needed without the special case. It's lower than that with the special case added, but it's still a lot.

- Montali: So whatever your Phase II WIP load is times 0.17 is your additional load to address beyond the WIP II level of effort.
- Spano: How does that percent relate to N and P reductions?
 - Shenk: It's both. You would need a 17% reduction in each from the Phase II WIP.
 - Spano: Those nutrients are managed differently; I don't know if you can approach both the same way. There are also different reasons for making adjustments based on the initial allocation. Secondly, there are different reasons for establishing special cases—WQ for the James vs other special cases that are equity based. Why did you exclude them all together?
 - Shenk: We excluded special cases for several reasons—James is one example for VA—that's managed through a separate process now. The James also wouldn't affect the other states very much since the watershed effectiveness outside the James basin is so low.
- Montali: There is an upcoming revisit of the estuarine model, will that affect estuarine geo efficiencies as well?
 - Shenk: That's up to the modeling team to decide to rerun.
 - Linker: We will have to investigate that. If there is a change in effectiveness, we will have to incorporate that into the geo runs.
- Davis-Martin: This presentation has laid the groundwork for the upcoming decisions we have to make this afternoon and tomorrow.

ACTION: The Modeling Workgroup will do additional analysis on the relative effectiveness in Phase 6. These analyses will include running the Phase III WIP planning targets on Phase 6 relative effectiveness with current conditions to assign loads to each state basin. The presentation of this analysis will also include an explanation of the changes in relative effectiveness due to recalibration of the Phase 6 Watershed Model and WQSTM, and the expected effect on relative level of effort from jurisdictional basins from changes to the model. Additional investigation into why WIP attainment of planning targets decreased significantly for WV, NY, MD, and DC and increased significantly for DE between Phase 5 and Phase 6 will also be presented to the WQGIT.

ACTION: The CBPO Modeling Team will analyze changes to the assimilative capacity of the Bay in the transition to the recalibrated Phase 6 Watershed Model and Phase 6 Water Quality Sediment Transport Model. The CBPO Modeling Team will also analyze changes to the Bay's assimilative capacity with the addition and removal of loads from the Conowingo Dam and Reservoir and 205 projected climate change impacts to the Bay. This will result in 6 different scenarios of assimilative capacity: Conowingo on; Conowingo off; 2025 climate change on, 2025 climate change off, both Conowingo and climate change on, and both Conowingo and climate change off. The results of these analyses will be presented to the WQGIT at upcoming meetings for review in preparation for making final recommendations on the draft Phase III WIP planning targets development and Phase III WIP development process.

C. Establishing a Scenario Year for Phase III WIP Planning Targets

Presenters:

- Gary Shenk, USGS/Modeling Workgroup
- Dave Montali, Tetra Tech/WV DEP/Modeling Workgroup Chair
- Lew Linker, EPA CBPO/Modeling Workgroup Coordinator

Materials:

- Attachment C.1: [HYPERLINK "https://www.chesapeakebay.net/channel_files/25453/c_-_2017_09_25_wqgit_scenario_year.pdf"]
- Attachment C.2: [HYPERLINK "https://www.chesapeakebay.net/what/event/water_quality_goal_team_annual_face_to_face_meeting"]
- Attachment C.3: [HYPERLINK "https://www.chesapeakebay.net/channel_files/25453/establishing_scenario_years_for_planning_targets_and_phase_iii_watershed_implementation_plans.pdf"]

Discussion:

- Gary Shenk continued discussion of methods for planning targets, including the original allocation methods, and pros and cons of scenario year options for planning targets.
- Nicki Kasi: Can you clarify the third criterion?
 - Gary Shenk: The amount of growth that's grandfathered in is based on the year we choose for planning targets. If we choose a lower year, then the state basins that are growing have to be responsible for the amount of load they generate as they grow, and if we choose a later year, then all state basins share that load according to the hockey stick. The growth between 2010 and the year we choose is borne by all partners. If there was no growth from 2010 to the year we choose as the planning target year, then partners get the benefit of that "conservation" grandfathered in.
- Dalmasy: All jurisdictions grow at the same rate, correct? Changing the planning target year to the future benefits the basins that grow and punishes those that don't. I think we should stick with 2010 to be consistent with the TMDL and avoid the inequity I see here.
 - James Davis-Martin: There is more in the presentation that shows how application of these criteria, and we can decide then what logic we want to adopt for this criterion.
 - Tanya Spano: The TMDL was done because it seemed logical and equitable. I think that equity standard should be followed when making these decisions as well.
 - Teresa Koon: We have to manage growth, that's a charge from EPA Region III in the Phase III WIP expectations document. We have to account for growth in some way in the WIPs.
- Jason Keppler (online): Since the most recent Ag census data is from 2012, will 2010 be back-casted from 2012?
 - Shenk: It's interpolated from 2009 to 2012.
- Katherine Antos: How does this decision differ from the projected land use decision?
 - Shenk: I would direct you to the white paper presented a couple weeks ago for more information. There is another decision coming up about that. When WIPs are developed, you have a decision to make about which base year you want to use for the land use on which you implement your BMPs.
- Montali: Can we look at the bottom line and say anything about that possibility?
 - Shenk: We can do that, we have the numbers and we just have to run the calculations.
- Rebecca Hanmer asked how it was determined that base year would have to be reconsidered
 - Davis-Martin: That is something that has been raised, it is a previous decision but it is back on the table for Phase III.
- Davis-Martin: Notice, the whole line shifts up for a 2010 scenario year, so that all basins are responsible for equal amounts of increasing growth.

- Shenk: There are also basins that benefit from a relative decrease in P, and who benefits is related to what year we choose.
- Sarah Diebel asked for clarification on the 2012, 2017, and 2025 bars on the graph.
 - Shenk That's the cap load for each scenario year option.
- Kasi: Why is it better to be positive than negative, for cap loads?
 - Shenk: Higher cap loads mean that there is more assimilative capacity from loads from those jurisdictions.
- Shenk: We had a much more complicated slide, and we decided to only show one at a time to make it more readable.
- Currey: If MD used 2012, our cap would decrease, and if we choose another year the cap would increase.
- Kasi: How does a higher cap make the reductions easier?
 - Matt Johnston: That's the basement of loads that you have to hit. The higher the basement, the less effort is required from that jurisdiction.
- Norm Goulet: 0.2 million lbs. in the scheme of 77 million lbs. seems like a really insignificant number, I don't know if we really need a decision for something that small.
 - Tanya Spano concurred: what do these numbers include and not include?
 - Shenk: This is all Phase 6, with Conowingo at dynamic equilibrium.
- Currey: On a presentation note, keeping the units uniform throughout, committing to pounds vs percents for each graph would be helpful to make the representation clearer.
- Shenk: Those small differences in loads may not be significant for places like MD, but for NY, 0.5 million lbs. is half of their special case allocation. In some cases it can be really significant.
- Tanya Spano asked for explanation on why the load differences are so variable among years for DE and NY and not everyone else.
 - Shenk: This indicates that DE is shrinking in relation to the other jurisdictions that are growing.
- Spano: Is this punishing states that don't grow? Is this an equity issue?
 - Shenk: These are all brand new numbers, and we have to go back in to investigate why we got these numbers, which we need some time to do.
 - Spano: If we don't know why these changes happened, then can we accept these numbers on faith? I'm not comfortable with that.
- Montali: The only way to stay consistent with TMDL allocation methods is to use 2010 as our scenario year.
- Davis-Martin: All these numbers are relative to each other, not previous decisions. 2010 here may be worse or better than the 2010 that was used for the TMDL. There's only a few percentage points in difference here, it's not a huge issue, so let's just pick a year and go from there. It's difficult to use any of these analyses at this point, which is why we are using this logic model.
- McNally: Could the change in DE be in relation to sewer?
 - Shenk: A higher cap load for a future year means that the jurisdiction is growing. We can look into that and find out why the no action is higher in the future years. We know that WV and NY are not growing in relation to everybody else, but we don't know much beyond that.
 - Bill Angstadt: Region III is pushing us to account for growth that wasn't in the TMDL and is operating under the assumption that we will report nonpoint offset BMPs in the model. If a state's not growing then they don't need to offset that growth. Why would the cap load be lower with that assumption?
 - Gary: This accounts for everyone else's growth. I don't have an explanation of the policy side, just the technical explanation.

- Davis-Martin: This isn't complete accountability for growth—it's the impact of growth to expected No Action and E3 loads. Whatever year we choose as a base for those scenarios, each jurisdiction still has to account for their own growth in their Phase III WIP or through the milestone process or some other process. I brought up this issue as a decision point last year of whether we should change the base year for these scenarios. Two members have suggested continuing to use 2010. We can come back for a special case if we find that 2025 targets are no longer attainable within E3 if we use the 2010 scenario year.
- Dinorah Dalmasy asked if this allows states to develop WIPs on another year other than 2010.
 - Davis-Martin: That's a separate decision. It may be a communication challenge but I expect this particular issue to be lost in the technical weeds once planning targets are released.
- Spano: Planning target years might affect more than just this decision. I think 2010 is the most logical decision and is the most consistent with prior methodology. I would support the recommendation to proceed with 2010.
- Nicki Kasi asked how the base years would interact with Con accounted for
 - Shenk: It would give a bump in reductions to everyone, but it wouldn't change the relative reductions shown here.

DECISION: The WQGIT approved using 2010 as the scenario year to establish the Phase III WIP planning targets. This recommendation will be presented to the PSC for approval at the December 19-20 PSC meeting.

D. Accounting for the Effect of the Conowingo Dam and Reservoir on Bay Water Quality

Presenters

- Lee Currey, MDE/Modeling Workgroup Co-Chair
- Dave Montali, Tetra Tech/WV DEP/Modeling Workgroup Co-Chair
- Lew Linker, EPA CBPO/Modeling Workgroup Coordinator

Materials

- Attachment D.1: [[HYPERLINK "https://www.chesapeakebay.net/channel_files/25453/d-conowingo_infill_for_wqgit_9-25-17_final.pdf"](https://www.chesapeakebay.net/channel_files/25453/d-conowingo_infill_for_wqgit_9-25-17_final.pdf)]
- Attachment D.2: [[HYPERLINK "https://www.chesapeakebay.net/what/event/water_quality_goal_team_annual_face_to_face_meeting"](https://www.chesapeakebay.net/what/event/water_quality_goal_team_annual_face_to_face_meeting)]

Discussion:

- Lee covered background on Conowingo, past studies and policy options, MD 401 process, new studies on Conowingo that allows accurate calculations and decisions to be made regarding Conowingo.
- Lew covered results from modeling analysis of key scenarios and Conowingo on/off, results of historical studies, STAC reviews and workshops, and modeling tam analyses. Result: Susquehanna is in dynamic equilibrium, no longer trapping, and needs to be accounted for.
- Diebel: Is that a WIP I or WIP II scenario, the 50% increase in P loads in the Susquehanna from Conowingo?
 - Linker: This is all done on Phase 5.3.2 of the model, Phase II WIPs.
- Davis-Martin: The loads there don't look familiar for the watershed-wide loads we've seen so far.
 - Rich Batiuk: This is Susquehanna only. Under the TMDL WIP scenario, this would be the result if all the additional loads from Conowingo were distributed only to the Susquehanna river basin.

- McNally: What happened between August and now for the Phase 6 model?
 - Linker: The only change that we have accommodated is all the recommendations as a result of the fatal flaw resolution process.
- Shenk: We are using a model that hasn't been calibrated, so we need to take recalibration to account for Conowingo when we simulate dynamic equilibrium.
- Currey: The model that calculated these results now has sediment flowing over the dam, and does it capture reactivity with species of sediment from the bottom of the reservoir?
 - Linker: Yes, we do simulate differences in reactivity of P in sediment coming over the dam.
- Spano: It's not just all the changes, it's accounting for the reactivity. Is that a logical explanation for why there is less P being counted here than we've had in the past?
- Linker: We had a strong learning curve when studying Conowingo, and we found that the best way to study it was to use the model simulation.
- Montali: During non-scour events, there's a certain reactivity ratio of G1:G2:G3 coming over the dam, but scour it's different, right? That's when the less reactive species come out?
 - Linker: Right.
- Currey: These graphics show the total P coming over, which accounts for scour and includes loss of trapping. The reactivity only begins to factor in when you consider attainment of WQ standards. We haven't looked at these loads in the Bay yet to determine effects with assimilative capacity, since we are using the Phase II WIPs right now to assume assimilative capacity.
- James Davis-Martin asked for clarification on the reactivity.
 - Linker: These are the total loads (slide 11) that include total P, which is the sum of reactive and nonreactive. During scour events, we see a far greater relative amount of G3 species of P coming over the dam (G3 = nonreactive). However, we don't look at reactivity at the CBP for the TMDL, that's a standard operating method at the Bay Program.
- Batiuk: We had more P and more percent nonattainment when we ran the analyses two years ago, and now we are getting closer to reality as the current model shows less P running over to contribute to algal blooms and hypoxia, right?
 - Linker: Right.
- Linker: We have begun to look at relative effectiveness for accounting for loads from Conowingo. We will also go over those proposals today.
- Davis-Martin: The reactivity comes into play when these loads reach the Bay, right?
 - Shenk: Right, and we will be able to do more on that when we do some more analysis. The recalibrated model might show P loads a little higher, but reactivity might be a little lower.
- Ted Tesler: How is this actually coming through in the model?
 - Shenk: The hydroqual model ran and gave us the effect on the reactivity as scour increased. As scour increases and goes deeper, you are cutting out sediment that's more deeply buried. The longer P sits in the buried sediment, the less reactive it becomes. There is a relationship between the flow state and the reactivity of the P. The other question asked what happens when you change the input loads? There is a constant delivery factor across scenarios, and we can use our assumption of having delivery factors constant across scenarios.
- McGee: A UMD study found that there was a high proportion of adsorbed ammonia that could be bioavailable during scour events. Will that be accounted for in the model?
 - Linker: We are working on that. The N in the form of ammonia from the bottom sediments is the spike in N loads we see during scouring storm events.

Commented [WM1]: Spelling?

- Davis-Martin: In this all-basin responsibility scenario, the curve for state basins on the effectiveness/effort graph has now moved from 50% -70% range to 61%-80% range.
 - Shenk: That might be the case. There are other factors besides Conowingo in the mix there too, so the bump isn't just due to Conowingo. It is closer to E3, no matter where the extra load is coming from.
- Spano: Is there a name for this option?
 - Shenk: This would be everyone responsible—everyone is responsible for some of the Conowingo loads.
- Shenk: The other options are the effectiveness scenarios where the most effective basins are more responsible for loads, and there is an everyone except DE and WV option.
- Matt Johnston: Is there a difference between slides if we include special cases? Is this the same as saying that there is a Conowingo special case that would bump those three state basins out of line with the 20% slope line?
 - Shenk: Right, and that's why I drew these lines by hand so that the bump wouldn't show yet.
- Currey: Why did the wastewater line move up too?
 - Shenk: It wasn't clear to me that the Conowingo load should only be added to the nonpoint source load reductions, and I wasn't clear on the exact methods we should use. I kept the same 96% maximum effort for the point source line, so the hockey stick still occurs where it's bumping up against the maximum.
- Diebel: Is there a scenario for current conditions, with Susquehanna only?
 - Shenk: Current conditions is a double whammy on the Susquehanna, since you are making them more effective and giving them more loads to account for, and we want to avoid what is essentially double-counting those loads.
- Karl Berger: Wouldn't DC also be included in the last option as non-responsible basin along with DE and WV?
- Davis-Martin: With the change in Susquehanna, there is an influence on the amount of load and the relative effectiveness of the load. The relative effectiveness will shift Susquehanna basins to the right on the graph, resulting in a higher level of effort for those basins. Some of the additional load is accounted for simply by moving those basins to the right on the line. Then there's the new load piece, where the load increases can be thought of as special cases where more reductions are needed. We will have to decide how to distribute those extra load reductions, as well as the new relative effectiveness. Let's start with what relative effectiveness values we want to use—relative effectiveness from the 1990s or the current understanding of relative effectiveness.
 - Nicki Kasi asked for that information to be presented in a bar graph visually.
- Spano: The relative effectiveness should be based on the latest science; we should first do the cut that reflects current understanding of relative effectiveness. The other issue is one of equity, which can be evaluated once we know what the science tells us.
 - Shenk: The science is very clear here, in that we know we have a lot more P and sediment delivery from the Susquehanna now that Conowingo is nearing dynamic equilibrium. It's not a question of whether the 1990s or the current delivery factors are more accurate—the 1990s are accurate for the 1990s and the current is more accurate to current conditions. The issue is to decide how to deal with the additional load that we know is there. We have to decide what the base should be and who has to do additional work from there. If we choose a delivery factor that's based on current conditions, then the basins above Conowingo are already making up for some of that additional load since it will be baked into their relative effectiveness.

- Spano: It's not just Conowingo that changes the relative effectiveness, so you have many factors influencing the effectiveness. If you apply that rule across the watershed, then does that mean that essentially every basin has to do more?
- Currey: There are three decisions here that I think we need to make: The year we assume for the Conowingo condition—mid-1990s or today to determine relative effectiveness; what basins will be responsible; and how to adjust the wastewater line in response to the first two decisions.
 - James Davis-Martin concurred: The reason the WW line was adjusted was because the all-else line moves too close to E3 otherwise, correct?
 - Gary: Right, and I didn't see any clear direction there over whether or not to move the wastewater line. That's a decision the WQGIT needs to make.
- McNally: Why would we choose 1990s relative effectiveness over today's relative effectiveness?
 - Gary: Both 1990s and current conditions came out of the Phase 6 Model. We just wanted to figure out what effect Conowingo would have and then assign that load to someone. If we start with current relative effectiveness, then we are double counting some of the Conowingo load in certain basins, since the increased delivery from the Susquehanna accounts for some of that load as well.
- Spano: We should follow the science and then decide what the extra loads are that have to be accounted for.
- Shenk: We are not adding any new loads here, we are just redistributing them across the watershed and accounting for them in different ways. Moving the Susquehanna basins out to the right reflects the increase in delivery from the current conditions relative effectiveness. When we add more effort to those basins on top of the increased relative effectiveness, we are effectively double counting those basins because they have more to do from additional effectiveness and additional effort to meet those reductions. That means that all the other basins get a benefit since their caps are raised relative to the Susquehanna.
- Lindsay Thompson: Instead of double-counting for the Susquehanna, could we simply hold the line constant relative to other basins so that their effort isn't as great?
 - Shenk: If we started with holding the line constant for relative effectivenesses, the whole curve shifts but the efforts will still remain the same.
- Shenk: Total P from the watershed doesn't change much with different distribution scenarios. We are interested in the load change to the cap as it relates to relative effectiveness.
- Lee Currey asked what this set of graphs is relevant to.
 - Shenk: This would be options for addressing loads within the planning targets with the current understanding of Conowingo relative effectiveness.
 - Davis-Martin: This would be the reductions required if the 2010 TMDL was written based on what we know today about Conowingo. This is the "if we had known" scenario.
 - Shenk: this morning was also based on current infill conditions.
 - Kasi: If the TMDL had been written with Conowingo at dynamic equilibrium, then that would be 0 on the graph.
- Norm Goulet asked why DC was cut out of the all but DE and WV option?
 - Jim Edwards: That was a decision by the PSC that those jurisdictions that benefited by the Conowingo infill should take additional loads—that included DC, DE, and WV.
 - Goulet: Couldn't the same be said for the MD Potomac and VA Potomac?
 - Linker: The distinction there is the tidal fresh designation, and the only jurisdiction that lies entirely in the tidal fresh area of the Potomac is DC, so there was no influence downstream from anything.

- Davis-Martin: The original proposal was actually Susquehanna plus MD and VA, as opposed to excluding DE, WV and DC. In that scenario, PA is doing the bulk of the work in the Susquehanna, but they have small contributions to the Potomac watershed as well.
 - Montali: That's my understanding too, is that PA Potomac did not influence those reductions, was it done that way?
 - Shenk: Only DE and WV were left out of that scenario. It was a mistake to leave those areas out, and we can put them back in if that's what the WQGIT wants to see.
- Currey: We assumed the assimilative capacity this morning to be at the Phase II WIPs with Conowingo in the mid-1990s. For relative effectiveness calculations, we assumed Conowingo infill as we know it today to develop the planning targets we saw this morning. Some of Conowingo is being addressed in the current planning target slopes due to changes in relative effectiveness. It's not accounting for the additional reductions, but it is assigning some responsibility to some jurisdictions.
- Shenk: Right. The balance of effort to the states is partially affected because of that change in relative effectiveness if we use current delivery factors. If we move the Susquehanna basins out to the right, we say that those basins have to do a little but more, but we haven't addressed the actual loads coming from Conowingo.
- Matt Johnston: In simple terms, Gary is presenting an option for not grandfathering in the growth that has already occurred with Conowingo. We are assuming that growth did not occur in the 2010 E3, so the growth in loads has to be accounted for in the planning targets.
- Spano: Is it that you just can't factor in Conowingo in the relative effectiveness?
 - Shenk: That's Katherine Antos' question, which make sense mathematically
 - Spano: Why can't we look at it that way?
- Davis-Martin: Even the 1990s here is the 1990s state as represented by the Phase 6 model. I think what this proposal is saying, is that we will hold that blue line exactly as it is—every jurisdiction will be doing the exact same percentage of E3 as they did in Phase 5.3.2. After that, we will figure out how to allocate any additional load from Conowingo.
 - Shenk: That would ignore all the new geo runs and relative effectiveness changes we've found
 - Spano: We need a scenario that shows what that might be, not necessarily to decide on, but just to see where we have been so we can know where we're going.
- Davis-Martin: However, for today, perhaps we should constrain our decision making to just the scenarios that we see here, and we can request other scenarios to be run after this meeting as well. We don't want to over-complicate this.
- Norm Goulet suggested going back to Lee Currey's three proposed decision points:
 - 1. Which relative effectiveness year to use, 1990s or current conditions;
 - 2. Which jurisdictions will be responsible for the additional load;
 - 3. How to adjust the WWTP line, if at all.
- Currey: for example, if we look at VA with the Susquehanna Only scenario, what this is basically saying, is the relative effectiveness has changed not only for Conowingo but also due to other factors, then VA's effort has increased even with the Conowingo additional loads being restricted to the Susquehanna basin in terms of responsibility. VA is doing 10% more due to changes in relative effectiveness from the Conowingo.
 - Shenk: This is percent change in the target loads. The blue bar is a raised cap in VA for the "If we had known" scenario. Everyone would have had to do more if we had known in 2010 about Conowingo dynamic equilibrium. If we take all that additional load and restrict only to the Susquehanna basin, everyone else gets a higher load cap by comparison, which translates to less effort for VA in the

Susquehanna only scenario. If your target is 1 originally 1 million lbs., and your target then increases to 1.1 million lbs., that's a higher cap load for you—essentially that's 0.1 million lbs. less effort for you. A higher target is easier to achieve.

- Spano: That's a lot of translation to do mentally to see what this graph is telling you.
 - Shenk: You could invert
- Currey: Going back to VA, with Susquehanna only—why does VA's cap go up?
 - Shenk: This is all relative to the "if we had known" scenario, which means that cap load changes under different scenarios are compared back to that "if we had known" scenario to give the changes in cap load shown here. "If we had known" is similar to the "all basins" scenario, but varies in the amount of point sources you have.
- McGee: Where are the stakes with this conversation, if we are just doing now what we would have done if we had known in 2010.
- Currey: The question here is what does it mean to compare where we are now with where we were before—what does it mean for each jurisdictions in terms of changes to planning targets and what these options would look like? We have to be able to answer that question, which is why we are making these decisions. We need to know how all these options will play out in order to adequately assign these extra loads.
- Rebecca Hanmer asked what the allocations look like compared to before? Is that the "effective basins" scenario?
 - Gary: The 0 line is the "if we had known" baseline, if we had allocated loads in 2010 based on what we know now for Conowingo inflow. The other scenarios will change that baseline somewhat for each jurisdiction.
 - Dianne McNally asked what the scenario "effective basin" mean?
 - Gary: Susquehanna, Western shore, Upper and Middle Eastern Shore, Patuxent below-fall line. Those basins have the most impact on P in the watershed in the new relative effectiveness we have.
 - Teresa Koon: In the TMDL, we made the assumption about Conowingo and we did add a contingency that if we were wrong, we had a path forward outlined that we would take. That was an issue that WV is concerned about.
 - McNally: EPA has said that the additional load from Conowingo would be handled by WV, MD and NY in their milestones, that was written into the TMDL. Since that time and the 2016 PSC meeting, other issues were thrown in the mix, but that was the assumption when the TMDL was written.
- Spano: Since this isn't in the currency of pounds, then it's harder to tell what the level of effort is. I would advocate for representing the levels of effort as pounds rather than relative percentages whenever possible. I'm not sure the "if we had known" baseline is actually the baseline, since it doesn't account for the relative effectiveness as we know it now in Phase 6. I think one of your other scenarios is actually closer to the best science we have since it's accounting for those new relative effectiveness values. The other issue here is the timing of the implementation here—do we want to hold ourselves to addressing all the additional loads from Conowingo by 2025?
- Davis-Martin: Going back to the original TMDL. To take that back to our 3-decision package that Lee outlined. If we used that TMDL-defined path, then MD, WV and NY basins would slide out to the right to reflect increased effectiveness. They would also be accounting for the increase in load, which is the double-counting issues. That's why we use the 1990s delivery factors, to avoid the double counting issue.
- Davis-Martin: This is the sliding bars that show reductions beyond the WIPs (Presentation B1). Is this more understandable to put together for the Conowingo options?

- Diebel: It seems that no matter what we do, some states will benefit and some will be disadvantaged. Is there another logic table with criteria to consider for making this decision if it's not ideal for everyone? What Tanya and Katherine Antos were getting at, was that we have new relative effectiveness values from Phase 6 that are adjusted based on what we know today. We also have additional loads from Conowingo that also change the relative effectiveness. We need to see what the Phase 6 relative effectiveness values look like for those state basins and then decide based on those how to allocate the additional loads from Conowingo.
- Currey: Can you walk through the percent changes for the yellow bar? That would start with Conowingo additional loads being shared by everyone—that might be a good starting place to then understand the other scenarios.
 - Shenk: The changes in capacity in percentage shows what the targets and relative effectiveness would have been if we had known about the infill in 2010. The yellow bar—the “all,” bumps the original planning target line from the 50-70% effort to 60%-80% of the E3—about 10% extra effort for everybody, and bumps the wastewater line up to nearly E3 levels. The bump in the wastewater line means that jurisdictions with a lot of point sources, like DC, will have a lower cap they have to meet (higher level of effort). For DE, it's kind of a wash. MD has a little more effort under this “all” scenario. PA and VA get a little benefit (higher target, easier to reach) since they have less point sources. There's also the effect of the new relative effectivenesses, which have shifted Susquehanna and a couple other basins out to the right.
- Rich Batiuk: We are spending a lot of time on these small pieces, it's important but we are talking about a million lbs. here. We want to avoid doing unnecessary harm to the Partnership. Can we rule out the All and All but DE and WV based on the unrealistic expectations it puts on DC and VA? I can't go to VA and tell them that they will end up with another 18% effort to reduce P.
 - Davis-Martin: This graph isn't relevant to what we have been asked to do. This graph is relevant to what we would have done if we had known today.
 - Shenk: The better graph would show 5 scenarios on top of what we already have. So new targets calculated the old way, on Phase 5.3.2.
- Antos: The issue here is that we need to understand what we've got to work with based on the decisions we've made today for the planning targets—using 2010 as our No Action and E3 scenarios year, for example. The issues we need to be able to address in these decision points are 1: are we accounting for the latest science; 2: can we explain our decisions; 3: is it practical to ask the jurisdictions to do this? Is it realistic, for instance, to ask DC to achieve 98% of E3 for wastewater in order to meet these reductions under the “all” scenario, on top of all the reductions they've already made. I'm also concerned that we are considering using different values for relative effectiveness depending on what piece of the puzzle we are looking at, and I think that we need to make a decision for relative effectiveness that will be consistent across the board.
 - Shenk: This graph happens to use the 2010 scenario year as an experimental representation.
 - Currey: I'm not sure we should rule out the “all” option because we can't explain it. The hockey stick for wastewater was also based on what we've done before to have Wastewater as a hockey stick, and now we are moving wastewater flat across all the jurisdictions. Is that consistent with 2010 decisions?
- Davis-Martin: Let's change the graph in terms of what we're relative to. And for the lines, keep the hockey stick (red line) and only make changes to the All-else line (blue line). It won't be the final answer, but we don't want to change too much at once and we have to look at the changes one at a time.
- Goulet: Are we cherry picking scenarios here? We need to get back to Lee's 3 questions.

- Davis-Martin: We have a request to go with the current understanding of relative effectiveness over the 1990s relative effectiveness, to address Lee's question 1.
- Teresa: A caveat—this data only came out this morning and needs to be reviewed before we can really understand this new relative effectiveness. We are all just assuming at this point that this data is accurate.
- Davis-Martin: We did look at changes in relative effectiveness this morning, we just need to make a conceptual decision here with awareness that the numbers for that will be reviewed, and that we will accept the peer reviewed numbers for that. Do we want to go with current understanding of relative effectiveness, or decide on using 1990s effectiveness that was run through the Phase 6 model, which would reduce the effectiveness for the Susquehanna basin by removing Conowingo somewhat from the equation?
- George Onyullo: I don't think we have the appropriate knowledge at this point to make that decision. We are only making assumptions here. We may have to revisit these assumptions and be as practical as possible in the meantime.
- John Schneider: DE will not be assuming any responsibility for Conowingo, no matter how effective it is.
- Montali: My supervisors in WV will take the same stand, because the TMDL says that Conowingo is not WV's problem. I am still trying to understand these additional capacities here as they affect WV. Why are the Susquehanna and effective basins the same in terms of capacity? Why do the blue and orange bars look so similar?
 - Shenk: The differences in the blue and orange bars is just that some load is transferring from MD to NY, as we go from the "Susquehanna only" scenario to the "effective basins" scenario.
- Currey: When we went to the PSC in December 2016, I thought what we explained to them was pretty straightforward. We talked about looking at these options: "Susquehanna only", "Susquehanna plus effective basins", "all Bay states", and "all basins." The takeaway was, if you include the Susquehanna, there is a predictable additional load that goes to PA. Then, including the Bay states, the additional reduction that each responsible jurisdiction has goes down to 10% or so, and sharing the load among all the states is also about 10% extra effort for everyone. That was just to illustrate that the smaller states don't have much effect overall on the Bay. Adding that 4th scenario, of effective basins only, wasn't something the PSC asked us to do, but it might be useful for comparative purposes. Going back to the three decision points we had this morning, do we as a group want to keep WW lines fixed as they were before? And additionally, what do we want to compare these scenario options to? I think the WIP II targets are a useful comparison, since they would show the target we already have, and then shows how much more we would need to do under each scenario, based on what we're seeing here.
- Hanmer: How you are trying to deal with an additional load by having some jurisdictions do less? I don't understand how that works.
- McGee: The other piece of this is the cost-effectiveness analysis for addressing additional loads from Conowingo. The idea there is that, not only is it better to have the jurisdictions that are more effective do more, but also that we should spread the BMP implementation to areas that it's more cost-effective to achieve those load reductions.
 - Olivia Devereux: That analysis was done with Phase 5 relative effectiveness values, so we need to run the analysis again with Phase 6.
- Dinorah Dalmasy: I'd like to see a graph with the WIP II targets the way they were done before and the relative effectiveness from Phase 5.3.2, and the new graph with the same methods and the new data from Phase 6—with all the new science and the new data. That gives us a way to compare differences and make management decisions. We have the best science available in the model, and we should go where the science takes us in terms of the new relative effectiveness with Conowingo.

- Lauren Townley: This graph on slide 18-19 is just a percent change, and is not related to the WIP in terms of straight extra lbs. Will those actual numbers be provided to us at some point?
- Davis-Martin: We do need to improve these materials to aid our decision making here. We need to make this relative to the WIP to make it clearer, and we can do that over our coming conference calls in October.
- Diebel: Why would an area like Hampton Roads need to increase reductions if there is no effect on CB4 from Hampton Roads?
- Shenk: People want to know what this might be relative to the WIPs, but that conflates with the WIPs in terms of effectiveness of the WIPs. We could run a scenario now with 1990s relative effectiveness on Phase 6, which would remove the effect of Conowingo from the targets. That could be our new baseline, and then we can add these scenarios on top of that to decide how to address Conowingo. There will only be increases, except from the scenario where we use the current relative effectiveness and we don't allocate to everybody—then some basins will go down relative to others.
- Spano: The cost effectiveness analysis probably won't be ready in time for making these policy decisions, so I don't think we should hang any of our decisions here on that analysis.
- Davis-Martin: We will work one by one through each of the questions Lee suggested. The last was how to deal with point sources with Conowingo. There were a lot of separate decisions and considerations that went into making the hockey stick a hockey stick instead of a straight line, and I don't know if we want to open up all of those again by revisiting those methods. I suggest that we keep the hockey stick for the point sources and make all of our adjustments to the all-else line.
- McGee: With respect to where basins are on the hockey stick, would those basins be able to slide from the high end of the hockey stick to the low end?
- Goulet: based on new relative effectiveness, yes—those individual basins would shift but the shape overall won't change.
- Beth McGee asked what the original decision was to create the hockey stick. Was there a reason why certain basins were higher or lower on the line?
 - Spano: We weren't assigning a percentage of loads, we were working off a concentration times flow to develop a load, and we broke off the hockey stick at 50%.
 - Shenk: It just happened to be that the basins in the middle that form the curve of the stick were already close to 100 percent of their E3 scenarios—Potomac, DC, Patuxent, etc.
 - Spano: That was also a way to take as much of the load responsibility off NPS as possible.
 - Goulet: Leaving wastewater on par with nonpoint sources effectively shifts the effort to urban sectors and agricultural nonpoint sources. I find it difficult to hold point sources harmless in this instance.
 - Davis-Martin:
- James Davis-Martin called for consensus on the wastewater decision point. Do we keep the hockey stick as we did before for the TMDL?
 - Consensus reached: The WQGIT approved keeping the wastewater effort curve consistent with 2010 decisions.
- Davis-Martin: The next question is on the relative effectiveness and the levels of effort each state would have to make.
- Spano: Can you clarify?
- Davis-Martin: We will look at 2 options: relative effectiveness of Conowingo operating now—that's one set of geographic areas that are more effective, and the second would be the 1990s effectiveness run through phase 6 to form the second set of effectiveness rankings.

- Montali: Could we keep it in the context of this morning? What if the 0 line is a standalone scenario, and the decisions this morning of the base year to examine relative effectiveness?
- Shenk: People want to see bar graphs that show the additional load required from Conowingo, from the 1990s baseline upward.
- George Onyullo: The word relative is a big problem for me. I also think you should do away with percents and just give us numbers.
 - Davis-Martin: But the numbers don't show the magnitude of changes from certain basins.
- Montali: I'm taking away that WV has a 15% higher level of effort based on the results that we have now.
- Shenk: I can put the WIP on too to show where the WIP II gets you.
- Currey: You will compare back to the WIP II right?
- Davis-Martin: To get back to our decision points, 1: point source lines; 2: relative effectiveness; 3: how we will compare and display those numbers. Gary will show us updated options tomorrow to make decisions on 2 and 3.
- James: Next steps: We will stick to what we've been asked to do, which goes back to those options of all, else, Susquehanna, and effective basins. Can we eliminate any of those now?
 - Ann Swanson: The all option will allow for comparison, which would be helpful to the PSC as just a comparison point, not necessarily a real option. The effective basins option seems like something the PSC would understand why you added that—that's a logical option to evaluate.
- Tanya: Is there a better way to label or explain the options for Else and Effective.
- Gary: The 4 scenarios: Susquehanna Only, Effective Basins, All, and All but DE and WV.
- James: Can we get a map that shows what the effective basins are as well?
- Jim: We did have a map in our meeting with MD that showed some of VA included in the effective basins.
 - Lew: It depends If we are looking at Phase 5 or Phase 6 effectiveness. Phase 6 restricts the effective basins more than Phase 5.
 - James: The map with purple basins showing TP transport as a result of Conowingo infill and reductions by basin for each accounting option.
- Tanya: We are not changing the decision rules, right? Changing the relative effectiveness only applies to Conowingo right, not any of the other relative effectiveness values for the TMDL?
 - Kasi asked for clarification
 - Gary: We use all the relative effectiveness values together to get the planning targets.
 - Dave: We are getting hung up on how not to over or undercount these scenarios, and we need to trust Gary to do his job there.
- Dianne McNally: The other question is when to address the load from Conowingo
 - James: Do we plan as part of the WIP for 2025, in the WIP after 2025, or not put in the WIP and plan to address post-2025. The issue here is we need to make these other decisions on the methods and planning targets before we can say. I'd like to suggest that we consider planning for it in the WIPs, with the understanding that it may take beyond 2025 depending on the effort that it requires.
 - Kasi: I'm not ready to commit to that yet.
 - James: We can come back to that later then.
- Teresa wrapped up and covered plans for post-meeting networking and social events
- Lindsey: Materials from Peter Claggett are available online for growth forecasting scenarios

DECISION: The WQGIT will recommend to the PSC to begin addressing additional loads from the Conowingo Dam infill now, with the knowledge that dynamic equilibrium conditions are already occurring, and with consideration that Partnership decisions should inform the ongoing recertification process between Maryland and Exelon through section 401 of the Clean Water Act. However, practicable implementation levels with regard to E3 need to be considered, along with diminishing efficiency in allocating load to additional jurisdictions. With this in mind, the Effective Basins scenario and the Susquehanna scenario were determined to be the most effective and efficient strategies. Additional strategies include acknowledging that the load will be addressed through various efforts, potentially by assigning it as a local planning target and including Exelon in the implementation discussions.

ACTION: The Modeling Workgroup will conduct additional analysis on assimilative capacity in the Bay with and without the Conowingo load distribution scenarios, and will develop explanatory materials to represent the options for distributing additional Conowingo phosphorus and sediment loads in future presentations to the WQGIT and PSC.

DECISION: The WQGIT will recommend to the PSC to address Conowingo loads separately as a special case shared between the Susquehanna and most effective basins in the watershed, and additional loads from Conowingo will not be included in the Phase III planning targets.

DECISION: If the PSC does not approve the special cases approach for addressing additional Conowingo phosphorus and sediment loads is not approved, then the WQGIT will recommend that consideration of the "All Basins" and "Susquehanna + MD + VA" responsibility scenarios be removed, and that the PSC consider only the "Susquehanna + Most Effective Basins" scenario. However, all scenario options will be shown to the PSC for comparative purposes.

DECISION: If the additional Conowingo loads will be included in the draft planning targets, the WQGIT will recommend using the same effort/effectiveness curve for calculating wastewater targets that was used to establish the wastewater targets in the 2010 TMDL.

DECISION: The WQGIT recommended to the PSC that additional loads from the Conowingo infill should be addressed now, given the current knowledge of Conowingo as an already-changed condition. Partnership decisions made now will also inform the current Clean Water Act 401 certification discussions between Maryland and Exelon.

ACTION: CBP Modeling Team will provide information on how the relative effectiveness of each basin changes between the Phase 5.3.2 and Phase 6 models. One suggested method is to provide a relative ranking of Phase 5.3.2 effectiveness values on graphics with Phase 6 effectiveness values.

ACTION: The CBP Modeling Team will run a 'necessary reduction beyond WIPs' scenario with Conowingo loads at 1990s conditions.

ACTION: The CBP Modeling Team will run a scenario with 1990's Conowingo condition and relative effectiveness values.

ACTION: The CBP Modeling Team will develop two relative effectiveness options to look at for scenarios: 1) relative effectiveness of Conowingo operating under current understanding, and 2) using 1990's understanding of Conowingo and relative effectiveness of Phase 6 model.

Day Two: Tuesday, September 26, 2017

E. Potential use of 2025 Growth Projections in the Phase III WIPs

Presenters:

- Peter Claggett, USGS/Land Use Workgroup Coordinator
- Karl Berger, MWCOG/Land Use Workgroup Chair

Materials:

- Attachment E.1: [[HYPERLINK "https://www.chesapeakebay.net/channel_files/25453/e-future_scenarios_claggett_092617.pdf"](https://www.chesapeakebay.net/channel_files/25453/e-future_scenarios_claggett_092617.pdf)]
- Attachment E.2: [[HYPERLINK "https://www.chesapeakebay.net/what/event/water_quality_goal_team_annual_face_to_face_meeting"](https://www.chesapeakebay.net/what/event/water_quality_goal_team_annual_face_to_face_meeting)]

Discussion:

- Nicki Kasi: What's the timing for reviewing the forecasts?
 - Peter Claggett: The next LUWG meeting is in early October, and we'll be reviewing the tabular data with them.
- Mary Gattis: Did a notice go to those local governments who've supplied you with that local information?
 - Peter Claggett: Not yet – but we should do that. We're going to continue tweaking the forecasts a little bit, but it's mostly final.
- Mary Gattis: The way I think about this local review, is that this will be done almost in perpetuity. Each time we go out, we get more data and information.
 - Karl Berger: Assuming we move forward with this, in a few years we'll come out with new forecasting information.
 - Mary Gattis: Messaging that is important, so we don't become defensive about it.
 - Norm Goulet: I agree, but we also need to be up front with these people that we've done a lot, and our time is getting short where we have to finalize this information. So at some point, we need to be clear about the lock-down date. But we'll certainly keep those lines of communication open with the localities.
- James Davis-Martin: Really, the zoning influences where in a county growth could occur; it doesn't really change the amount of growth?
 - Peter Claggett: It can – if a lot of lands are downzoned, the zoning information would limit the capacity for growth in rural areas, thereby concentrating people in high density areas.
- Beth McGee: If you're assuming that zoning has an impact on where development occurs, wouldn't you expect the historical trends scenario to reflect that?

- Peter Claggett: When we forecast without explicitly incorporating zoning, we don't have a stark separation between commercial, mixed, and residential growth. So the comingling only occurs with the zoning data. The Land Use Workgroup felt that some local governments wouldn't feel as though the scenario represented zoning without that explicit use.
- Mary Gattis: Isn't it true that there wasn't a whole lot of variation between using and not using zoning data?
 - Peter Claggett: Correct - there really wasn't a whole lot of difference there at the county level. But when you get down to the sub-county level, then there is some differentiation. And in ways, this is good for jurisdictions that lack zoning data, because we have a reasonable, plausible representation of their future land use.
- Sarah Diebel: Do you have a ratio of the total amount of growth in the watershed, and total amount of zoning information you received? Just to get an understanding of the percentage missing?
 - ACTION: The CBP Land Data Team will provide information on the total coverage of zoning information informing the Current Zoning Land Use Forecast.
- Norm Goulet: Did you poll the federal facilities for zoning information?
 - Peter Claggett: No, and we're not forecasting growth in federal facilities.
 - Norm Goulet: But with Quantico VA, that base has seen so much development, and impervious has grown – it's significant.
 - Peter Claggett: Well we represent that in the land cover, and going back through time we look at land cover and census data. So we do reflect change that's occurred, but we're not forecasting change.
- James Davis-Martin: So you project land use at 5 year increments – how does that translate into Milestone periods?
 - Peter Claggett: We do a straight jump from 2013 to 2025, but we only do 5 year increments after 2025.
- Tanya Spano: You're attributing these changes and you're displaying it at the county level. At the local level, it may be occurring in one concentrated versus elsewhere. So when you're messaging this, localities may have different visions of what their development looks like.
- Dave Montali: How do you determine growth on sewer?
 - Peter Claggett: Spatially, we have sewer service areas. When we assess infill, we're looking at historic change in census urbanized areas, and we're looking at how much change occurred that didn't express itself as land use change. So we assume all infill is on sewer. Then we simulate greenfield development, and when that's taken as a fraction of total housing change, we get a fraction of new development on sewer.
 - Dave Montali: So then what information can we give you to refine our growth on sewer numbers?
 - Peter Claggett: We need additional spatial information that's essentially planned sewer.
 - Tanya Spano: The WWTWG hasn't had a chance to have this conversation, so we recognize that Peter has made some good assumptions, but there's some vetting of those assumptions that hasn't happened yet. We recognize the difference between precision, and having the projections be reasonable accurate.

- Mary Gattis: Isn't that something we were going to look at in an alternative scenario – planned infrastructure?
- Peter Claggett: Right – the 3rd scenario was going to be currently planned infrastructure.
- Mary Gattis: Hopefully this is something jurisdictions are thinking about in terms of local engagement efforts, especially if we decide to do WIPs on future growth. I believe that these sewer service areas can have varying spatial quality depending on what county you're looking at.
- Peter Claggett: For a county where we don't have sewer service information, we modeled it explicitly based on a variety of information.
- Peter Claggett asked the WQGIT whether they would approve the use of the CBLCM and MDP Land Use models to potentially develop the 2025 forecasts. This includes the potential to include new, more accurate data if/when it is available.
 - Tanya Spano: In doing this, is there an extra piece where we're also allowing for the inclusion of other, more precise information if we have it?
 - James Davis-Martin: Correct – at two-year intervals.
 - Dianne McNally: Would the process for incorporating new data be to vet it through the LUWG?
 - Response: Yes. The update would be applied during 2-year milestone periods.
 - No concerns were raised.

DECISION: The WQGIT approved the use of the CBLCM and MDP Land Use models to develop the 2025 forecasts for potential use in the Phase III WIPs. This includes the potential to include new, more accurate data if/when it is available during 2-year milestone updates.

- Peter asked whether the WQGIT approved the LUWG recommendation to eliminate the 'Historic Trends' scenario, and focus on the new 'Current Zoning' scenario. This would serve as the principle scenario for the 2025 forecasts.
 - Matt Johnston: I know groups here want to look at these scenarios, so I would suggest setting a deadline in December, understanding we need final planning targets in March.
 - DECISION: The WQGIT approved the LUWG recommendation to eliminate the 'Historic Trends' scenario, and develop the new 'Current Zoning' scenario by November 15, 2017. This would serve as the principle scenario for the 2025 forecasts.
- Peter asked whether the WQGIT would accept the implementation of minor refinements to the CBLCM, with a to-be-specified December deadline.
 - Tanya Spano requested that any changes implemented would be made in consultation with other workgroups as needed.
 - James Davis-Martin: We would finalize the Current Zoning scenario by the end of October, and that model would be used for the next two years.
 - James Davis-Martin: Zoning data will be accepted, but it will not be incorporated until the next milestone period (2019).
 - Karl Berger requested the deadline for finalizing the forecasting model fall after the November LUWG meeting.

- Lew Linker: Implications of changing the schedule include a 6-week processing time once the forecasting data hits the Modeling Team.
- Nicki Kasi: How does this play into the PSC decision?
 - James Davis-Martin: This is a recommendation of what we would use as a 2025 land use, should we use 2025 as the scenario year for planning targets.
- Kristin Wolf asked what type of communication states should have with localities.
 - Peter Claggett replied that scenarios could be shown to localities, and that the request could be made for refined zoning data later down the road to start that continual improvement process.
- Matt Johnston: The Historic Trends scenario is closer to the future reality than 2010, and on CAST next Monday will be the Historic Trends scenario – so every jurisdiction can run draft Phase III WIP scenarios at that time. In January, if we hit our deadlines, CAST will have current zoning, which we’re assuming is an even better reflection of reality.
 - Nicki Kasi: But we can use the draft county data that’s available now to start local engagement.
- The final Current Zoning scenario will be completed by November 15, before which the LUWG and any relevant workgroups will have had the chance to review.
- James Davis-Martin asked how the alternative scenarios would be used.
 - Peter Claggett: By building our database of planned infrastructure improvements, which is still incomplete, developing aggressive land conservation, the partners can play what-if scenarios, looking at the effect of up-zoning and down-zoning on loads, aggressive land conservation, etc. We’ll be able to tease out specific factors that we’ve got in our models to look at the isolated effects. Essentially, the Partnership will have the capacity to do more flexible what-if scenarios, to help WIP development in how jurisdictions will deal with growth.
- Katherine Antos: I imagine as states and counties go through the WIP development process, these scenarios will be useful reference points. But what if a county does a mix of two scenarios – will there be a way in CAST for WIP developers to play with zoning, and model case-specific refinements that don’t neatly fit within one of the 3 scenarios?
 - Olivia Devereux: That’s more of a policy decision, if areas are going to go a different route than other jurisdictions.
 - Tanya Spano: Local governments want flexibility to look at many different scenarios. So mechanistically, we need to understand how they can do that.
 - James Davis-Martin: Peter can isolate elements of the Utopia scenario; each of those would have to become separate land use cases in CAST.
 - Olivia Devereux: We developed BayFAST so jurisdictions can have individual land uses.
 - Matt Johnston: The way we incorporate MD’s data is that they take a look at what Peter creates, and check it against their prediction, and they hand it back. Then the LUWG takes it as an alternative future, and rolls it right into CAST. The same process can be done in jurisdictions next year. But I wouldn’t want to see 5 versions of one county, but rather MD working with all of their county to present an alternative future for the Phase II WIP, for example. So each jurisdiction manages their localities, to create one set of land uses to represent the future and the new set of zoning policies.

- Beth McGee: That is one solution, but it doesn't allow locals to run those individual scenarios. So it doesn't sound like there is that flexibility built in to this.
- James Davis-Martin: Right; you'd have to send Peter specific parameters, and he would have to run his model to produce those specific results.
- Tanya Spano asked if jurisdictions can use BayFAST to coordinate with their states on the forecasts. Olivia Devereux replied that yes, this tool was developed to have flexible land use.
- James Davis-Martin asked the WQGIT if they endorse the LUWG's recommended next steps: to conduct a review of results, further refine the Current Zoning scenario, and continue working on alternative future scenarios.
 - Nicki Kasi asked if it was feasible to complete the alternative future scenarios. Peter Claggett replied that his team would be working on them after November 15th, and could have them done in the months following.
 - James Davis-Martin: What's the priority alternative future scenario here?
 - Peter Claggett: We can implement the Utopia scenario more easily than the Current Zoning Plus, since that one requires additional data collection.
 - DECISION: The WQGIT endorsed the LUWG's recommended next steps, prioritizing the development of the "Utopia/Conservation Plus" Scenario by January 15, 2018, followed by the development of a "Current Zoning Plus" scenario.

DECISION: The WQGIT recommended using 2025 growth projections in the development of the Phase III WIPs. The Chesapeake Bay Foundation cited concerns with this recommendation, and abstained from the decision-making.

- Sarah Diebel: There should be clear distinctions between the 2025 projections whenever they're updated, and what new data is informing them.
- Clarification that updating the forecasts won't update planning targets, but rather the milestone plan, which could impact how much growth a jurisdiction would need to account for.
- Beth McGee: Will fine-scale land use information be available every 2 years, so could you true projections with what's happening on the ground?
- Peter Claggett: We're working on a land change monitoring plan for the Bay, which includes periodic updates at 4-5 year intervals, with something in-between.
- Beth McGee cited objection to using a 2025 land use condition as the scenario year. She noted that using 2025 bakes in the loads to the process, and has the potential to shift loads from the private sector to the public/local/state government sector. Additional concerns include that in the model, there may be a potential to shift more development on agriculture due to loading rates. CBF noted that they would step aside on this issue, and not block consensus.
- Katherine Antos: In terms of baking in growth, it just highlights the important of setting the planning targets on a 2010 condition. Moving forward, then we would take into account best available information on how we think growth will affect things. I agree we shouldn't bake in future growth, and I think this team has been very strong in figuring out how to do that consistently, and really using an adaptive management process.

- Sarah Diebel: If federal acres aren't captured in 2025 projections, how will jurisdictions build Phase III WIPs without federal acres accounted for?
 - Peter Claggett: We're not forecasting growth, but that doesn't mean there's a black hole. We're not growing impervious, because the information and drivers are so unique to each of those properties.
 - Dave Montali: If federal facilities have better information than the 2025 projection, could that be a small alternative future component that would satisfy the feds working with jurisdictions in WIP development?
 - Sarah Diebel: I would support that.
 - Peter Claggett: So you'd be providing some submittal of change in impervious cover? In the same way we had the federal facility editor tool, perhaps we could entertain adapting that tool for federal facilities to provide some input?
 - Lee Currey suggested implementation scenarios done on both 2010 (or current conditions) and 2025, in order to explicitly look at what land is being converted in order to link that with jurisdictional policies.

DECISION: The WQGIT recommended updating the growth projections every 2 years with the best available data to inform the development of milestones.

- Tanya Spano: I want to emphasize the importance of distinguishing between significant and insignificant changes, particularly when it comes to changing loads.
- Matt: up to WQGIT to come up with a strict deadline to have the final projection results before the PSC meeting.
- James: These are the methods of the LUWG, and may include continued refinements through the finalization of the Phase 6 model. That's final until the next milestone period.
- LUWG has their next meetings to review changes and finalize. Final projections will be approved at LUWG November meeting.
- Lew: It will take 6 weeks for the Modeling team to incorporate the LU data into the model.
- Matt offered a path forward: state level alternative future scenarios rather than submitting county scenarios for the CBP to manage. State level scenarios can be built directly into CAST.
- James called for agreement that we need CAST tools that will allow development of alternative future scenarios during the Phase III WIP development process.
- Lots of emphasis from Nicki Kasi on committing to timelines for getting alt future scenarios done.
- Dave Montali supported using 2025 growth in Phase III WIPs as accounting for growth measure.
- Discussion between Norm and Beth on the trends of loading between urban and ag land uses.
- Sarah Diebel has a q on federal acres not being captured in 2025 projections—how can jurs build WIPs without fed facilities accounted for?
 - Peter: There is growth included at county scale around federal facilities and land cover change is captured today, but is not counted as growing in the forecasts.
- Consensus on using 2025 for development of Phase III WIPs:
 - Consensus from the WQGIT to use

- Q to communicate effectively to the PSC

DECISION: The WQGIT recommended updating the growth projections every 2 years with the best available data to inform the development of milestones.

DECISION: The WQGIT recommended using 2025 growth projections in the development of the Phase III WIPs. The Chesapeake Bay Foundation cited concerns with this recommendation, and abstained from the decision-making.

DECISION: The WQGIT approved the use of the CBLCM and MDP Land Use models to develop the 2025 forecasts for potential use in the Phase III WIPs. This includes the potential to include new, more accurate data if/when it is available during 2-year milestone updates.

DECISION: The WQGIT approved the LUWG recommendation to eliminate the "Historic Trends" scenario, and develop the new "Current Zoning" scenario by November 15, 2017. This would serve as the principle scenario for the 2025 forecasts. The "Current Zoning" scenario will be available in CAST by January 2018.

ACTION: The "Conservation Plus" scenario (formerly "Utopia" scenario) will be completed by Jan 15, and will be available in CAST by March 1. The large data collection effort required to develop the "Zoning Plus" scenario will delay development until later in 2018; "Conservation Plus" was determined to be of higher priority.

ACTION: The CBP Land Data Team will provide information on the total coverage of zoning information informing the Current Zoning Land Use Forecast.

ACTION: The LUWG will continue to develop alternative futures scenarios identified at the June Local Government Advisory Committee Forum. The "Conservation Plus" (formerly "Utopian") growth scenario will be completed by January 15, 2018, to be incorporated into CAST in March 2018. The "Current Zoning Plus" scenario will require a large data collection effort, and will not be completed until later in 2018.

F. Options for Factoring Climate Change Impacts and Considerations into the Phase III WIPs

Presenters:

- Lew Linker, EPA CBPO/Modeling Workgroup Coordinator
- Mark Bennet, USGS/Climate Change Workgroup Chair
- Zoe Johnson, NOAA/Climate Change Workgroup Coordinator

Materials

- Attachment F.1: [[HYPERLINK "https://www.chesapeakebay.net/channel_files/25453/f-wqgit_climate_change_092617_final_2.pdf"](https://www.chesapeakebay.net/channel_files/25453/f-wqgit_climate_change_092617_final_2.pdf)]
- Attachment F.2: [[HYPERLINK "https://www.chesapeakebay.net/channel_files/25453/mpa_climate_change_policy_option_briefing_memo_wqgit_090617.pdf"](https://www.chesapeakebay.net/channel_files/25453/mpa_climate_change_policy_option_briefing_memo_wqgit_090617.pdf)]
- Attachment F.3: [[HYPERLINK "https://www.chesapeakebay.net/channel_files/25453/cc_webinar_9-19-17.pdf"](https://www.chesapeakebay.net/channel_files/25453/cc_webinar_9-19-17.pdf)] (also presented as a webinar 9/19/17)

Discussion

- Lew Linker presented on the quantitative analysis of climate change impacts to the Bay, including sea level rise, gravitational circulation, and the slight benefits to hypoxia in the Bay due to sea level rise by 2025. The 0.17 m sea level rise doesn't confer significant benefits to hypoxia. Other climate change issues presented included: changes to suspended solids, estimated wetlands sensitivity to climate change, and new results from the Phase 6 Water Quality Sediment Transport Model (WQSTM, September version, final uncalibrated model).
- Sarah Diebel: Is there a reason why DO (dissolved oxygen) of less than 1 mg/L is designated as a hypoxic state?
 - Linker: That's the threshold defined here, but the pattern would be the same no matter what definition of hypoxia we choose.
- Diebel: Was a 2050 climate change scenario also run?
 - Linker: We ran that with a 0.5 m sea level rise (2050 estimates) and we would see a fairly substantial improvement in hypoxia with the added volume in the Bay. We will get the results of that scenario, along with the 0.17 SLR by 2025, out to you for review soon.
- Spano: These are the results from the 2025 estimate right now that's based on 0.3 meter SLR, right?
 - Linker: These are based on the draft Phase 6 results, which is the August version of the model. The September version of Phase 6 would be the uncalibrated model with all the changes put in as a result of the fatal flaw review process. We will be running this again in December with the final Phase 6. There is a nuance there that should be captured, but we don't expect significant changes to these results for climate change.
- Beth McGee: How does evapotranspiration relate to the flows and loads driven by big storms? Is evapotranspiration a mitigating factor there?
 - Linker: We analyzed precipitation from historical trends in the highest 10 percent—historical extreme events--- to understand what future trends might be for storm events. We need to dig deeper into the analysis to really answer that question, though.
 - John Schneider: How does that relate to changes in growing season for climate change in relation to evapotranspiration?
 - Linker: Evapotranspiration is modified to the point we can, but we need to do more analysis.
- Linker: In terms of other factors we looked at for climate change, we need to re-evaluate flow sensitivities to N loads in the model—currently there is no sensitivity, which means that N loads don't increase with increased flows, which we know is not the case in reality. We will be resolving that in the final version of the model.
- Davis-Martin: Wetland attenuation is still evaluated at 0.3 m SLR in the SLAM model, right?
 - Linker: yes, and we need to update the analysis for 0.17 m by 2025. Once we get those extra values in, we can interpolate anywhere along the line for other estimations of SLR on marsh attenuation.
- Hassan Mirsajadi: Has the process of subsidence been considered in the CC forecasts?
 - Linker: Within 2025, we have a pretty good understanding of land subsidence, but we have to look at that for 2050.
- Linker: 2050 is another planning horizon for the WQGIT and the partnership, beyond the TMDL.
- Davis-Martin: In your previous slide you had about a 1% increase in total N loads coming into the Bay, that would be something more than 1 million lbs. on top of the 2010 base conditions?

- Jim Edwards: That's about 2 million lbs. from the base loads we have.
 - Linker: This 1% increase would be something like 1-2 million lbs., yes.
- Diebel: Where is the graph with just the additional loads from climate change? I only see loads with nothing or both Conowingo and climate change loads on there.
 - Linker: These are fresh results that we ran over the weekend, and we didn't have time to run through all the scenarios separately. Our priority was to run the WIP II, run the WIP II with Conowingo, and run the WIP II with both Conowingo and climate change. With more time, we can run the climate change + WIP II scenario separately as well. We can do this any number of ways as the WQGIT wants us to go.
- Spano: The difference between the two bars of WIP II + Conowingo and WIP II + Conowingo + climate change is that 1% increase of about 2 million lbs? But you are going to rerun this so those loads might change, right?
 - Linker: Yes, we just noticed a problem with CO2 trends in our projections—they should be positive but they shouldn't be as high as we are seeing here.
 - Spano: So that error is skewing those numbers in the wrong direction?
 - Linker: It's a known problem that we haven't had time to fix but we will try to get to it in the next version.
 - Spano: The 1 million lbs is what's presented here, and with corrections you might expect to see the additional loads from climate change go up to 1 million lbs.
 - Linker: That's right.
- Sally Claggett: We learned at the recent STAC workshop that we expect to see higher precipitation in the winter during leaf-off conditions. Is that consideration addressed in the modeling work here?
 - Linker: In the model, we take the estimated increase in precipitation, and parse it out by month. The record we are seeing here is month-by-month change in the finest unit we can apply. That's the basis of that seasonality consideration in the model.
- Linker: One of the most important findings we have is the increase in nonattainment in CB4. We can compare nonattainment in CB4 of 18.9%, which increases to 19.4% with climate change. On the Eastern Bay, we had a nonattainment of 14.5%, which increased to a 14.6% nonattainment with climate change.
- Dave Montali: This looks like a wash to me, slight but insignificant changes from climate change for 2025, with a lot of uncertainty. Will that change at all?
 - Linker: We will have a wash by 2025. We estimate some improvements in hypoxia by 2050 with SLR, but we don't see that at the 2025 point.
 - Montali: That's contingent on the BMPs still functioning and getting their pre-climate change efficiencies, but at this point there are not additional loads that need to be offset from climate change by 2025.
 - Linker: Right, there are no additional loads, but there is a need to look at other effects of climate change that may not be directly related to hypoxia—increased flooding, etc. Even though there is no change that would affect the TMDL, there may be a benefit to including a numeric climate change assessment in the WIP planning targets, with the understanding that it will influence all the management activities in the watershed.
- Spano: Mathematically, there are extra loads. The additional loads that might be generated off the land might have no effect on WQ, so we don't have to do anything about those loads?

- Davis-Martin: we are talking no additional P loads to the Bay, and the 1-2% increase in N has small impacts on WQ. The 4% increase in sediment will have implications on other management activities, but it doesn't affect hypoxia.
 - Linker: There are a lot of pushes and pulls for climate change—SLR has benefits, temperature increases cause some damage, and increased flows from storms have some effect. The effects of climate change cancel out by 2025 so the effect on hypoxia is a wash. After 2025, some of those push and pull factors change in weight and we will start to see more substantial changes from climate change. We still are seeing a small increase in nonattainment for those two segments, so there is some effect by it's small and there is a lot of uncertainty.
 - Montali: Those loads are evaluated for their effect on hypoxia in the Bay. The increased loads translate to 1 cubic KM of hypoxia in those segments.
- Rebecca Hanmer: We decided on hypoxia and clarity back in the 1990s. The purpose of standards is for ecological protection. Are we being too narrow in our focus here with respect to considering climate impacts if we only focus on the impacts to DO from SLR and not thermal stress? I find it hard to believe that thermal stress would not be having some effect on the shallow waters in the Bay. There are some BMPs along headwaters that are good for cooling, so thermal stress is not entirely irrelevant to BMP choice. There is a communication issue here. DO and clarity are not the only issues we should be focusing on in the WQGIT. The WQGIT also needs to be focusing on thermal stress as a pressing WQ issue.
 - Linker: That is an excellent point and needs to be communicated. I made that point at the webinar last week, and needs to be mentioned here too.
 - Davis-Martin: Agreed, but that's not relevant to how we should factor in Cc to the planning targets since the decision is all about the existing TMDL.
- Sally Claggett: Did you include future land use when you ran the climate change models?
 - Linker: That analysis will be coming soon.
- Mary Gattis: What about addressing the multiple outcomes in the Watershed Agreement through the WIP process? The decision we make here matters in that context, but maybe in a more qualitative sense. The WIP development process is also about the local connections, not just DO in the Bay.
- Mark Bennet presented on the WQGIT's options for recommending climate change considerations incorporations to the planning targets and Phase III WIPs to the PSC: quantitative in the planning targets, qualitative in the WIP development, or leave to discretion of the jurisdictions to determine how to address climate change for their jurisdictions.
- Davis-Martin: This policy recommendation for quantitative includes both the base conditions for planning targets and additional loads that jurisdictions have to address in their Phase III WIPs, right?
 - Montali: We did quantitative analysis to get these projected changes in attainment that are represented here in the modeling results, but that's not the quantitative policy option you're presenting, right? Quantitative policy is to take the analysis that we've done and build those calculations into the WIPs as a load. If we conclude that it's a wash, haven't we done the quantitative approach and concluded that there's not a significant load from climate change to include in the WIP III planning targets?
 - Bennet: You might be right that it's a wash, but the model results we have now indicate that there is a slight increase in loads, so we can't say that we are taking a quantitative approach to addressing those loads if we decide not to build them into the planning targets.

- Bennet: We looked at a number of TMDLs around the country for models on how they incorporated climate change, and there does not appear to be a standard approach for including that consideration. The Lake Tahoe TMDL took a more qualitative approach like option two here: they determined that there was too much uncertainty in representing climate change in their modeling, so they took the approach of addressing it in the WIP process as new information became available and incorporating it into the management process adaptively.
- Montali: There is still a lot of uncertainty here in taking the quantitative approach. Is there value in saying that we've done our best to quantify the impact of climate change, and determined that the increase in loads would have a negligible effect on attainment, so decided not to factor climate change in the planning targets?
 - Bennet: There's still the question of whether we will increase our implementation in terms of putting in more BMPs to deal with the slight increase in nonattainment we are seeing, or whether we take some other approach. So the option is still on the table there.
- Davis-Martin: By the time this language goes to the PSC, will there be more information to add to the second paragraph in terms of what the quantification is?
- Linker: We have to look at carrying capacity impacts from climate change in October. How the sea level rise might change the assimilative capacity in the Bay. There's an increase in load but there's also an increase in assimilative capacity due to sea level rise.
 - Bennet: We'd have to include that in very simple terms to include in this decision for the quantitative option, so that it would make sense without having to go through the whole presentation for understanding.
- Davis-Martin: That second paragraph that mentions that there is additional load that would be addressed by increasing the level of effort—could we quantify that right now and say what that added effort might be?
- Edwards: That extra effort to address climate change would go in the planning targets as an addition to the planning targets, right?
 - Davis-Martin: It's not the planning targets that would change, it's the level of effort needed in the WIPs to get to the planning targets.
 - Linker: Maybe we should conclude that sentence with "thereby changing the level of effort" then, because I don't think there's going to be a universal increase
 - Davis-Martin: Changing the level of effort rather than increasing the level of effort, since we don't know if increases will happen across the board.
- Shenk: If the assimilative capacity is changing from climate change, then that would change the planning targets.
 - Davis-Martin: So that would change the planning target, essentially we have climate change impacts in both those areas—the level of effort and the assimilative capacity.
 - Shenk: It could be that we get different planning targets with the same level of effort. If the targets increase, you might have the same effort to get to a higher load, if we find that assimilative capacity is increasing. If we were to quantitatively define both of those things, then change is the right word since we don't know what kinds of changes we would get.
- Diebel: Does base condition have a connection to calibration of the model? Would that mean that base conditions are incorporated into the planning targets as well?

- Davis-Martin: Gary is right, there would be a split—some on the effort side and some in the change in assimilative capacity, and the total of both would allow you to address the 1-2% increases in loads from climate change.
- Bennet: Can you help Zoe, Lew and I draft some changes to this proposed policy language with those recommendations?
 - Davis-Martin: I don't know that we need to make that change to the language now.
- Montali: Is this group today going to make a recommendation to the PSC? We've talked through this but why would we change this slide?
- Davis-Martin: We would recommend these changes to the language for the quantitative option: If we had the data that allows us to calculate the changes in base condition, could we include that in our recommendations to the PSC as changes to both assimilative capacity, planning targets, and addnal loads from Conowingo to address in the Phase III WIPs.
- Dave: There is a lot of uncertainty here, and we have to ask if we are confident in making decisions based on what we've seen today. Can we really recommend that approach with all this uncertainty?
 - Davis-Martin: Even if we don't make a recommendation one way or another, the PSC will still see the proposed language for these policy options.
- Beth McGee: Is the case that there may be added loads that jurisdictions will have to address in their Phase III WIPs, or is it that there may be loads that need to be addressed.
 - Bennet: The answer right now is maybe since we don't have the results from the recalibrated model yet, but right now we are seeing that 0.5% increase in nonattainment so as of right now there may need to be additional measures to address the increase in hypoxia we are seeing here.
 - Davis-Martin: We are saying that if there is added load then there would be a need to address it.
- Montali: We really don't know yet. Can we accept what we've got here, recognizing the uncertainty, put that aside for now, and start talking about what we want to do concerning BMPs?
- Mary Gattis: Was this option language approved by the PSC in December 2016?
 - Bennet: This exact language wasn't approved by the PSC, but this was an amalgamation of the 8 options presented to the PSC that were collapsed into 2: quantitative and adaptive, which is the qualitative analysis proposed here by the CRWG.
 - Gattis: So we need to go back to the PSC with some revision based on what we know now.
- Shenk: Proposed revision to quantitative option language: "Establishment of the Planning Targets and Phase III WIPs," which shows that some addressing of climate change will be included in the change in assimilative capacity and some will be included in the level of effort in the WIPs. Our best information right now says that it would require a slight increase in effort. We can say that the climate change projection may be an added level of effort that states would address if needed, and we can get rid of the last clause.
- Bennet: Ultimately, jurisdictions would be providing some kind of narrative in their WIPs and milestones that would allow for implementation of measures to address climate change.
- Teresa Koon: Is the Element B information coming up through the workgroups, or jurisdictions? Whose responsibility would it be to gather the information necessary to make changes at those milestone periods?
 - Bennet: That information would be coming from research outside the Bay Program, ultimately.
 - Rich Batiuk: We may facilitate information gathering, like that STAC workshop on BMP climate resiliency, but we are not looking to jurisdictions to provide that information themselves.

- Zoe Johnson: The Partnership will be providing that information, but jurisdictions are asked to review and approve the information in order to adopt it into their implementation narratives.
- Norm Goulet: Element A is unattainable—that information will not be available by the time we develop the Phase III WIPs. We are just now starting to think about work programs, but we don't have any idea of what the scope of the problem even is. Element A is a nonstarter or needs a different timeframe.
 - Spano: The fact that this is being tied to the Phase III WIPs means that we are assuming we have enough information now to start to address this issue, which may not be the case. Element A does seem to suggest that we have those answers available.
 - James Davis-Martin: Resiliency was one of the elements of the TetraTech multi-benefits study.
 - Zoe Johnson: We had a STAC workshop on BMP siting and design considerations in the beginning of September, and we are beginning to pull resources together. Siting information is available generally, but design is more complicated, since we have limited information at this point what kinds of impacts to performance of BMPs would influence design considerations. I don't want to lose the spirit of Element A, but there is the consideration of how to implement the charge of Element A.
 - Tanya: There's no standard out there for designing climate resilient BMPs.
- Montali: Going back to Element B, I don't understand what other BMP revision that might occur. Can we say that if and when certain BMPs do not turn out to perform as well as they were expected to due to climate change impacts, can we add a provision that we will go back through the Expert Panel process to come up with revised recommendations for BMP siting and design for each individual BMP as needed? There's nothing for jurisdictions to do then other than implement what the Partnership prescribes. It might just be that BMP efficiencies in the model would then change and jurisdictions just have to adjust their implementation as needed.
- Teresa Koon: Is there more info for coastal areas than for headwater states? We need synthesized information, not just a dense list of resources—that's not going to be very useful to us.
 - Bennet: We have more certain information for SLR than precipitation, so the stressors are better understood for coastal areas than for inland at the moment.
- Johnson: Here are the proposed wording changes for element A: "during the development and implementation of BMPs, jurisdictions will assess the impacts of climate change over the intended design life and propose designs that are resilient to the extent practicable by jurisdictions." The thought is that we want to encourage partners to use the information that's out there, for instance project screening checklists that are out there. Jurisdictions can assess that vulnerability of BMPs over their design life. That doesn't require prioritization or selection of BMPs that are more resilient, but would require jurisdictions to assess performance of BMPs over their intended design life and make adaptive choices for their continued implementation.
- Sarah Diebel suggested that elements A and B combine: The Partnership looks at BMPs that are resilient and identifies resilient BMPs in their Phase III WIPs, and the second piece would have some kind of narrative.
 - Bennet: Element A is in regards development of the WIPs, and B is the process after that.
 - Davis-Martin: If jurisdictions can't do A with the limited information we have now, they're left with B anyway and have to combine A and B anyway. Element B is about the milestones, where jurisdictions would have to address the issue of BMP resiliency in their milestones as new information becomes available.

- Johnson: Element A is the narrative piece in the Phase III WIPs, which would cover that additional forward thinking to the milestones.
- Davis-Martin: A isn't about WIP development at this point, it's about asking jurisdictions to incorporate those considerations in the verification process. I would include that in the example narrative for this option. That language can be included in the appendix and in the narrative of the WIP.
 - Johnson: We wouldn't ask jurisdictions to do anything up front in terms of prioritizing BMPs in their implementation.
- Davis-Martin: I would suggest including that in your example narrative for the jurisdictions rather than a separate element. To me the jurisdictions could describe their process for how they want to go through that process.
- McNally: You want to incorporate parts of Element A into Element C?
 - Davis-Martin: I would suggest incorporating Element A into B since we want to address climate resiliency not in the WIPs but during the milestone process. C is a narrative that describes what else the jurisdictions will do, and part of that narrative includes pieces of Element A. Part of that is the example narrative.
 - Johnson: Right, and it's already in there.
- Montali: So that narrative in the WIP would say that we honor the guiding principles, and we will look out for vulnerability and prompt element B?
 - Davis-Martin: Right.
- Davis-Martin: What should our recommendation to the PSC be?
- Montali: The quantitative is premature since we don't have enough info yet. There's 7 years till 2025, and as we move from 2025 to 2050, there is more certainty that there is a clearer effect from climate change. We could include that mention if people are uncomfortable with not implementing that yet.
- John Schneider: It needs to be prescriptive enough that the consideration is not subject to subjective interpretation. That's an advantage of including the quantitative approach and the numeric loads.
 - Bennet: That's also a concern is that we need to make sure the TMDL is certain enough that it will withstand legal scrutiny from outside. The concern we have is that there will be an outside challenge to the TMDL to say that we did not take a strong enough approach to addressing climate change.
- McNally: Lake Tahoe used a qualitative approach, for example. They said there was too much uncertainty in the modeling.
- Jim Edwards: We have talked about running the numbers by jurisdiction to see what the effort would be, and it wouldn't be included in the planning targets, but that information could be incorporated in the milestone process. If the one of the jurisdictions wants to include that information to develop WIPs, they can do that even without a Partnership prescription.
- Bennet: That last element says that if we choose a qualitative component and we also have this additional information by jurisdiction once the model runs are done, then if a jurisdiction wanted to go above and beyond and incorporate that quantitative consideration into their Phase III WIPs then they can do that.
- Davis-Martin: So we would be able to include that information if we wanted to, and we would say that if strong evidence appears that we will have significant impacts from climate change, then we could address it at that time through the milestone process.
- Kelly Gable asked how climate change can impact planning targets if we've chosen a 2010 base condition year.

- Shenk: We chose 2010 as the year of watershed model data input to develop the planning targets. A different year can be chosen for the WIPS, climate change, etc. What we developed the TMDL on is 1990s climate on 2010 land use and watershed inputs. What we have to decide is if we want to stick with that or address climate change as we know it in 2010 or in a future year.
- Beth McGee: What is the rationale to not choose the quantitative option? There is uncertainty, but we use the model despite uncertainty, so is that a good justification? How would we explain that to our stakeholders?
 - Davis-Martin: We considered the analysis with the information we currently have and the story is how best the partnership can address climate change to the best extent possible, and including that narrative component to consider how best to address climate change as we move forward in our implementation is the best path forward at this time. We are including it, we are just not including it in the modeling, it's in the WIP.
 - McGee: The issue of BMP performance vs increases in loads to address are two separate issues that we have to consider. To me the qualitative option is really only about the resiliency/performance of BMPs and doesn't consider the possible need to implement more BMPs to address the increase in loads from climate change.
- Montali: Many things with the WSM look at future impacts of management strategies, for instance P which is 25 years out. Right now, we don't think climate change will have a huge impact by 2025, but we can reassess that for 2050 and beyond.
- Davis-Martin: We will call for other opinions on what options to recommend. Beth McGee advocates for adoption of both the quantitative and the qualitative. Other thoughts?
- Spano: If we know that 20250 will be worse for climate change, will we regret any decisions that we make now when we come upon 2050 and beyond?
 - Davis-Martin: We are projecting that 2050 will be better for us in terms of DO, as sea level rises. But that's without the 2050 land use projections and other data that we would need to really understand what the Bay will look like in 30 years.
 - Bennet: There is more uncertainty the farther out to the future you go, so 2050 is less certain now than 2025. We can't definitively say what impacts 2050 will have on attainment.
- Spano: What about temperature changes? Have you modeled the impact on the land of forest change from climate, or instance?
 - Bennet: We have modeled impacts of temperature increases in the Bay estuary, but we have not modeled impacts on the watershed from temperature increases. We don't know what land use will look like, we don't know how climate change will factor into cropping practices, for instance. Especially with 2050, we don't know how behavior and conditions will change in the watershed by then.
- James Davis-Martin: I'm calling for consensus on the potential recommendations for addressing climate change that will be submitted to the PSC. It seems like the quantitative option is out, and the qualitative option with B and C elements only would be our recommendation to the PSC.
 - McGee: I am opposed to that recommendation.
 - Edwards: I would add that we will be running the numbers for jurisdictions to incorporate to their discretion in their planning. That would be a part of the qualitative approach.
 - James concurred: That would be decision point three.

- Davis-Martin: Can we concur on quantitative as no, qualitative as B and C elements only with the condition that jurisdictions would be able to incorporate quantitative considerations at their discretion?
- Bennet: We may not have those jurisdiction numbers by the October PSC meeting.
 - Linker: That's a separate question. climate change analysis is off the table for October with all the other work the Modeling team has to do. We can't run climate change by jurisdiction on the recalibrated model in time for the October PSC meeting.
 - Rich Batiuk: We have to have deliverables ready for October. We can approve that recommendation, and say that we can provide the local numbers by the December meeting.
 - Edwards: We can do that if we commit to having those numbers by the December meeting.
- John Schneider: If it's such a small number, especially at the local level, can we just include watershed-wide number in the WIP IIIs and avoid the criticism that is sure to come if we take an uncertain basin-level number and make it more uncertain by breaking it down to a finer scale? There's the WIP III and then there's the milestone process. We will put in BMPs in DE as part of our WIPs, and if our BMPs are wiped out by sea level rise or other climate change impacts, then we will address that in our milestones.
 - Davis-Martin: We could certainly include that recommendation, with the understanding that we are incorporating that with higher uncertainty.
 - Koon: Unless we get the numbers to look at, we cannot say that we will do the quantitative approach for WV. We already have a high level of effort so we need to see the numbers to understand what we are committing to. Are we making that decision in October or are we waiting to make that decision until we see the numbers in December?
 - Kasi: I agree, I'd like to see the numbers for PA too.
 - Shenk: We can get some numbers based on the model we have now. The final numbers won't ready until March 2018. We can run the estuarine model now though to determine the effectiveness with climate change. The PSC could see those numbers too.
 - Spano: Are we accepting numbers that we won't see for months then? We need to be cautious about throwing too much in the WIP III planning bucket.
- George Onyullo: We need to approve both quantitative and qualitative to ensure that we have the paths available to get us the numbers we need.
- Mary Gattis asked about the time frame for meeting additional load from climate change. Can we recommend that be addressed beyond the original time frame of the TMDL, after 2025?
 - Tanya: I would agree with that. Linking climate change considerations to the Phase III WIPs worries me, but if we have the option to keep addressing this issue beyond 2025, even in a Phase 4 WIP, I would approve of that.
 - Gattis: local governments have limited resources and can't move that quickly to retrofit BMPs. A later time frame is more realistic for implementation on the ground.
- James Davis-Martin called for consensus on the qualitative approach, with Element A removed as a standalone action and incorporated into Elements B and C, and we did not reach consensus on the remaining decision points but will take our understanding to the PSC to allow the PSC to decide between remaining alternatives. The WQGIT will recommend that if qualitative only is selected, the PSC also allow jurisdictions the flexibility to include quantitative approaches in their Phase III WIPs as well.
- Gattis: We also need to clearly describe the limitations in the narrow focus that we have here with this analysis and consideration, that it's strictly about the TMDL and is secondary to the rest of the Bay and non-hypoxia-related impacts from climate change.
- Spano: What about the timing issue?

- Johnson: The delay for implementation date was thrown out at the Dec 2016 PSC meeting.
 - Davis-Martin: We can recommend that the PSC reconsider delayed implementation.
 - Kasi: I agree. I think that decision was made to simplify things, but I think that in light of all we've discussed today, they should consider taking this past 2025.
 - McGee: It also depends what level of effort you're talking about. It might be premature to say that we need more time because we don't know what we're up against, but we do want the PSC to recognize that it is an option for them.
- Montali: The TMDL charge is to achieve practices by 2025 that will achieve WQ standards eventually. There may be an elegant solution there to include the quantitative approach for the climate conditions expected for 2050 such that the actions, maybe even with Conowingo, could occur sometime between 2025 and 2050—so it would be in there but our delayed address of climate change post 2025 could still meet that charge that we have committed to.
 - Bennett: There's a lot of uncertainty when we start talking about 2050. We took a really hard look at 2025 but we have not applied the same scrutiny to 2050—we can't apply the same scrutiny to 2050 because it's so far in the future at this point.
 - Davis-Martin: Agreed that there may be some elegant solution for implementation by 2025, but there is a lot of uncertainty there that still needs to be addressed.
 - Spano: beyond 2025 recognizes that management would continue beyond the TMDL date of implementation, and I like the message that sends.
- James: We will come back to this in October to draft our recommendations to the PSC with pros and cons and recommendations if each option is adopted.

ACTION: The WQGIT did not reach consensus on a recommendation to the PSC on adopting a climate change policy option for the Phase III WIPs. The WQGIT and the CRWG will revise the policy language for both the quantitative and qualitative policy options and will provide both revised options to the PSC for selection at the December PSC retreat.

ACTION: The WQGIT will also provide the PSC a list of pros and cons for each policy option and recommendations for additional measures the PSC should adopt if the qualitative climate change policy option is selected.

ACTION: The WQGIT proposed the following revision to the quantitative option language: remove the last clause from the quantitative policy option language, to reflect that potential changes in level of effort may not always be increases in level of effort with added climate change projections considered. The WQGIT also proposed a language change in the quantitative policy option to reflect the best available knowledge that some impacts from climate change may be addressed implicitly through changes in assimilative capacity, and some climate change impacts will be addressed explicitly through changes in jurisdictions' Phase III WIP levels of effort.

ACTION: The WQGIT proposed the following changes to the qualitative policy option language: Element A will be removed from the climate change qualitative option, and will be incorporated into Element B of the qualitative option. The Climate Resiliency Workgroup will revise the climate change policy options and present to the WQGIT for approval at an upcoming conference call.

ACTION: The CBPO Modeling Team will provide jurisdiction-specific climate change projections for 2025, to give each jurisdiction information on how climate change may impact their level of effort in implementing the Phase III WIPs.

DECISION: The WQGIT recommended that if the qualitative option is selected by the PSC, that the PSC also allow jurisdictions to adopt quantitative approaches to address climate change impacts using basin-level projections at the discretion of each jurisdiction.

ACTION: The CBPO Modeling Team will run 2025 climate change scenarios using 0.17 sea level rise, and will present any changes between these projections and projections run on 0.3 m sea level rise to the WQGIT.

Working Lunch: Finalizing Recommendations on Accounting for Conowingo:

Presenters:

- Gary Shenk, USGS/CBP Modeling Team

Materials

- Attachment D.3/G.1: [[HYPERLINK "https://www.chesapeakebay.net/channel_files/25453/g_-_09_26_wqgit_conowingo_scenarios_\(002\).pdf"](https://www.chesapeakebay.net/channel_files/25453/g_-_09_26_wqgit_conowingo_scenarios_(002).pdf)] (continued discussion from Day 1. Presentation also includes further discussion of draft planning targets)

Commented [WM2]: Getting updated presentation from Gary

Discussion

- Shenk: Using the current relative effectiveness is difficult, but it can be done. We have yet to decide whether to use the 1990s infill conditions or the current conditions when we do the planning target calculations, and we have to decide who is responsible and how to distribute the extra loads to responsible basins. We have decided not to change the wastewater line (hockey stick) and to make all changes on the all-else line when we do these calculations.
- Shenk: If we do another planning target calculation where we add on Conowingo to Susquehanna, NY, MD and PA, those three basins move up onto their own all-else line that is an upper parallel of the other line.
 - McNally: The scenario where three basins that have to do more—Susquehanna, NY, PA and MD—that 80% between No Action and E3, is that just the additional load from Conowingo, or is that everything they have to address in Phase III?
 - Shenk: They were originally on the bottom line of 58-75%, and adding Conowingo bumps them up by 20%. That's the "Susquehanna Only" option.
- Lindsay Thompson: Would the Susquehanna line not have to increase as much if we didn't let the other basins' line move down in terms of effort? How does that change if we change the infill conditions from 1990s to current?
 - Shenk: All that does is change the relative effectiveness of those basins. Using current conditions moves them farther to the right but doesn't change the effort required of them to meet these additional reductions.
- James: What changes between infill conditions—using 1990s relative effectiveness shifts a couple basins lower in percent of E3, which forces the other basins to do more to compensate.

- Shenk: Part of what's happening is that No action and E3 are also changing as we go between infill conditions. If No Action and E3 change, then the percentage of E3 means something different.
- Currey: Maybe we should keep the 1990s relative effectiveness for the lower line—all other basins, and use current effectiveness for these three basins that are shifted up.
- Shenk: If we choose Susquehanna and effective basins, then as we move forward in the future as infill continues, Susquehanna will start to pick up more effectiveness out of those three basins. As we move from 1990s to current conditions, the meaning of the Y axis is changing because we are changing E3 and No Action as well.
- McNally: What if we took a policy position that there is a minimum basement of reductions that jurisdictions have to achieve, even if they have low effectiveness in the watershed—just to take some of the burden off the Susquehanna and effective basins. What then is the difference between basins?
 - Shenk: That's hard to do because it's a zero sum game. If you take something somewhere you have to add to someone else, and it has to add up to 100% of the effect on the Bay.
 - McNally: Is that a way to get those additional loads from Conowingo?
 - Shenk: That was the reason why we started with 1990s as the base—that's the case where Susquehanna was still effective at trapping P, and then we build on the infill load on top of that. If we start at the point where Susquehanna is already in infill conditions, I think it gets a lot more complicated to do the calculations. The only difference there is that when we get to Susquehanna and other basins, Susquehanna will have to do more if we go with the current relative effectiveness, since the delivery from Conowingo increases with time.
- Rebecca Hanmer: Relative effectiveness as presented has the effect of lowering the targets that some jurisdictions have already agreed to. If we adopted a policy that those jurisdictions would have to stick with the higher loads that they've already agreed to despite their standing on the effectiveness/effort curve, does that help moderate the additional loads that Susquehanna might otherwise have to take on?
 - Shenk: Yes, if you don't let that basin drop down, then you would be lowering the effort for the Susquehanna. We have three choices: If we use current infill, then some jurisdictions will have big reductions to meet. The second option is to say, "What would we have done this year if we didn't know that Conowingo was having this problem?", and then bring in the understanding of the infill on top of what we would normally do. The third option is to say that when we make that assignment, we will move Susquehanna farther out to the right, increasing the effectiveness value, which would say that Susquehanna has to do more relative to the other basins. That's the question—do we want to incorporate the higher effectiveness of the Susquehanna when we divide up these loads. We can't start with current infill and then add the 1990s condition back in since it will drop again and your problem doesn't get solved.
- Kasi asked which basin is the farthest out to the right, that has to do the most for the "Susquehanna + effective basin" scenario? Is that the Susquehanna?
 - Shenk: It's one of the most effective basins, probably the upper Eastern Shore MD and not the Susquehanna.
 - Davis-Martin: That's because this is the "effective basins" scenario, in another scenario it might be the Susquehanna that's doing the most.
 - Shenk: That basin would be at 90% of E3 if we choose the effective basins scenario.
 - Davis-Martin: If everyone shares the load, which is the lowest cap for percent effort, then it's 89% of E3.

- Shenk: Don't forget that you can exchange N for P.
- Linker: I like slide 11. If you do the first method proposed, you don't get the negative loads which is the effect of the dynamic equilibrium—it's 0 or some increase. It's interesting that the total load of P addressed in the watershed changes for the different options. Depending on what scenario you have, there is more or less total load that needs to be addressed.
 - Shenk: As you get less effective basins that are responsible for loads, then the amount of reduction increases. Their efforts go up since everything they do has less impact. That means the total reductions increase for everyone if less effective basins have to do more.
- Koon: What if you just stopped those bars from going negative? Then the blue bars will be less, right? That's the constraint that I don't really understand.
 - Shenk: I can't guarantee that the math would work out for that right now. But there is some additional effect from Conowingo, and if Conowingo is added on to an already changed condition, I don't know if that would work.
 - Thompson: If we held the WIP II line constant, the effectiveness of those basins changes based on the new relative effectiveness and the additional loads from Conowingo.
 - Shenk: Nobody wants the line to move from the 1990s case, they don't want to have a benefit from that. Given that argument, we have to calculate at 1990s to stay at 1990s. We could put in the higher delivery factor for Susquehanna when we calculate the planning targets. If you want to keep the line at the 1990s, then we have to calculate based on 1990s condition and not use the current condition.
 - Linker: Doesn't the table on slide 11 demonstrate that? Using the 1990s condition, there are no negative loads.
 - Currey: If we look at Susquehanna only on the 1990s and effective areas, you can say by not having to an additional 6 million pounds of reduction, Susquehanna is more effective. That doesn't mean though, that the responsibility should lie only with Susquehanna, if other jurisdictions can take some of that burden but might have to tack on an additional ½ million lbs of reductions to account for the decrease in effectiveness. It doesn't need to be confined to the most effective basins just because they are the most effective. Another point looking at this, there doesn't seem to be any significant gains when you go from
- Lee Currey: Can this be seen as an all-jurisdiction issue that needs to be solved? What is the value of keeping the "All Jurisdictions" scenario?
 - Davis-Martin: It doesn't help anyone to use the "all jurisdictions" scenario, and it hurts MD and WV. So let's take it off the table and explain to the PSC why we took it off.
 - Spano: We have to explain why we aren't using the current condition relative effectiveness. It's not because we are choosing not to use the best available science, it's just a way of preserving the level of effort and not backsliding on our gains.
 - John Schneider: I think that's all in option number 2.
- Shenk: We are using the best science to start when it wasn't an issue, and move to where Conowingo is an issue and calculate from there. What I think you want is to incorporate the additional Susquehanna effectiveness when that second line is drawn (slide 9). When the second line is drawn, I left the relative effectiveness of the Susquehanna basins at 1990s. If we took those Susquehanna basins and added in the current relative effectiveness, then those basins would shift out to the right.
 - Diebel: So you'd use two relative effectiveness values for each line on the "Susquehanna + effective basins" option.

- Shenk: We are using the 1990s conditions to set the bottom line and we are using current relative effectiveness to set the second line for Susquehanna. The only basins that would change are the ones in the Susquehanna. The bottom line would drop slightly when the Susquehanna basins are moved out to the right to reflect current understanding of relative effectiveness, which would give Susquehanna a higher share of the burden.
 - Davis-Martin: It's not just where you set the line, it's where the basins fall along that line as well.
- Dinorah Dalmasy: Can we use the new relative effectiveness on the lower line and make Susquehanna something like a special case? And then we would adjust the other basins accordingly.
 - Shenk: If we shift The Susquehanna out, the whole bottom line will shift down. There are only three basins that change—Susquehanna (NY and MD, and PA). The question is whether we want Susquehanna to be further on that line when we assign responsibility.
- John Schneider: we need a reality check. Is it feasible for Susquehanna to achieve 80/90% of E3? E3 levels of effort are aggressive. Can the whole Susquehanna basin really be turned into grass pasture and forest? You have to consider what 90% of E3 really means for Susquehanna and determine if it's possible to get there? Most of E3 reductions involve taking lots of farmland out of production, which isn't economically viable.
 - Tanya Spano concurred: This load has been building for decades, and can we expect to fix it immediately in 8 years in a few basins?
- Kasi: What is it we are trying to achieve here? Will we really go to 90% of E3 for a 1-2% nonattainment in a few segments? We've discussed the possibility of nonattainment even with the TMDL. Can we consider that we can just allow for some variance in attainment and admit that working to solve the nonattainment from Conowingo is outside the resources of the Partnership.
- Davis-Martin: There is more than one way to meet water quality standards. Perhaps dredging is an option that should be on the table.
- Beth McGee: Before we revise water quality standards, can we push that commitment out to 2025 before we decide to change the standards prematurely? Let's discuss the timing of this implementation.
- Nicki Kasi suggested a local planning goal for Exelon, especially if dredging is an option to restore Conowingo trapping. Exelon should be one of the partners here.
 - Jim George: We have considered sending a Partnership and EPA letter to Exelon asking for contribution on achieving water quality standards. Is a local planning goal a possibility for that letter?
 - Kasi: That might be a possibility. That would also be consistent with Ben Grumbles' remarks on collaborative partnerships.
 - Currey: MD is working with Exelon now on water quality projects, and we could solidify that commitment with a written charge from the Bay Program.
 - Kasi: They can't take all of it on, and there is a reality check that has to be done, but they can contribute something.
- Bruce Michael: Exelon is already investing in modeling and monitoring for the issue, so continued engagement of them as a willing partner is important.
- Kasi: They might already be investing in preventing further sediment loads, but there also might be other ways to work on the issue. Legacy sediment removal or dredging, for example. That could be defined within a local planning goal.
- Michael: There isn't one single strategy that can address the issue, it has to be multiple strategies by multiple partners.

- Kasi: Everyone in PA is eager and willing to see what we can do, but I can't go back to them with a decision to achieve 90% of E3 and expect PA to buy into the decision. That will definitely kill all the enthusiasm we have to address the issue.
- Tanya Spano suggested a special case designation for Conowingo. There may be a precedent in the special case set for the James River.
- Ted Tesler suggested looking at the P coming over the dam vs the soluble P coming down the river. Would separating out those two sources of loads add to the discussion?
 - Gary: We currently estimate 1.1 mil lbs. extra phosphorus load here due to Conowingo. But we don't know yet how that will affect the assimilative capacity in the Bay. That's an analysis that we need to do on the model. We need to see what the change in water quality will be.
 - John Schneider brought up P uncertainty concerns in the model when dealing with P sensitivity to assess assimilative capacity—there is very little sensitivity of P built into the model today. What would you do to get to 90% of E3 based on the limited P sensitivity we have in the Phase 6 model?
- Kasi: One factor could be legacy sediment removal, which doesn't affect ag much if at all. N and P exchange are also important non ag factors in P sensitivity in the model. It doesn't all have to come from ag.
- Davis-Martin: It seems like there's agreement from the group to go with a multi-factor approach, not just in dealing with the variances, but also a recognition that it may be a necessity to get Exelon's commitment in the effort to get to the needed reductions. Going back to the table of responsibility scenarios even with all these other approaches. I don't think that the "Susquehanna + MD + VA" scenario is viable because of the big jump in effort and relative decrease in effectiveness going from the "Susquehanna + effective basins" scenario. I think we should go with "Susquehanna + effective basins", with the question of what qualifies as an effective basin. Is it possible that effective basins could expand?
 - Linker: We had a clear break point for effective basins, and we could expand to mid-tier basins but there would be changing the clear threshold we established before.
 - Currey: I still want to consider the basins that would have 90% of E3. If the level of effort is so high, alternatives like dredging should be considered and then the new level of effort post-dredge should be considered. We need a complete picture for the PSC of what the implications of the options are here.
- Montali: The question of when to address is still important. Should we work on the research now and consider pushing implementation till 2025? Is that option open to us? We can start working on this now, but we may not have a path forward for implementation for another several years.
 - Davis-Martin: The partnership can change 2025—timelines aren't included in the TMDL, and 2025 was written into the Watershed Agreement.
- Spano: If you have a special case like the James with all these options, that allows for more exploration. I don't think we can recommend a solution now if we are required to do 90% of E3—it doesn't pass the laugh test.
 - Davis-Martin: Could we take the effective basins option and say that the bottom line is the reductions for 2025, and the upper line be incorporated post-2025?
 - Tanya Spano suggested revisiting the issue in several years, perhaps post-2025, and develop a recommended time frame for what it might take to address the problem.

- Matt Johnston: Since MD and PA are on board, we could add the expectation that the Partnership will review plans from MD and PA in their 2023 milestones, so that it's not in the WIPs but it can still be addressed through a formal process.
 - Sarah Diebel concurred: It gives stakeholders confirmation that we are working proactively on the issue on a two-year basis, without committing to unattainable reductions.
 - Davis-Martin: We can do that. We can establish a two-year milestone point that says that by this time, the Partnership will have decided who is responsible and when implementation should take place, and we can go forward from there.
 - Diebel: There is a clear break point where it becomes less effective to add on additional responsible basins. We can work through that today. How those basins would address those reductions can be covered under the milestone process.
- Currey: I don't want to put off the reductions, I want to address them now. The loads are already here and we know that our water quality goals won't be reached unless we address the additional loads that are already out there. We can't just put this off. MD is going through its 401 license process with Exelon and we want to include the load management in that renegotiation.
- McGee: I want to relate this back to the Phase III planning targets. What about the relative effectiveness values we were deciding on?
- Davis-Martin: Phase III WIPs could be on current relative effectiveness, but the added Conowingo load would raise the effort (lower targets) for all basins. Running on 1990s relative effectiveness would lower the effort (raise the targets) for the basins relative to the current conditions, but we'd have to find a way to add Conowingo back in.
- Katherine Antos: I agree with Lee. We don't want to lose the momentum we have from the partners.
- Schneider: I want to ask the scientists in the room: do these phosphorus and sediment loads constitute an ecological emergency?
 - Linker: The resurgence on the Susquehanna Flats is improving, and it looked like the additional loads from Conowingo are not contributing to ecological decline in the flats. The improvement was largely attributed to improvements in nitrogen, and not to changes in sediment.
 - Shenk: One of our guiding principles includes a charge that all allocated loads must meet water quality standards, and not addressing Conowingo doesn't do that.
- Ted Tesler: Can we set Conowingo aside in the Partnership as a separate issue for ad-hoc rapid work?
- Davis-Martin: What if we agreed on using the effective basins option, and during the review process, the effective basins are encouraged to request for special case designations that would lower their level of effort.
- Montali: is there an option to add in a new Conowingo allocation that would satisfy the load reduction? Like a separate point source or a local planning goal?
 - Tesler: Taking the option of addressing Conowingo as a separate point source opens a lot of avenues to us and can expand our thinking. Denitrification implementation or acceleration with N:P exchanges could partially achieve reductions.
- Shenk: Who would be the responsible party if it was a local planning goal?
 - Kasi: PA, MD and maybe NY and Exelon will have to work together to develop that. A multi-jurisdiction local planning goal would be a good idea, with its own schedule and its own set of milestones. The variances also have to be part of that.
 - McNally: It would be a multi-jurisdictional local planning goal that each jurisdiction would have to include in their WIPs as a local planning goal.

- Davis-Martin: That takes all the responsibility scenarios we've discussed so far off the table for distributing Conowingo among basins. We would just say the cumulative load responsibility will be shifted to MD, PA and NY and Exelon as local planning goals. And perhaps we could take implementation out past 2025. We will leave it to you all later to figure out how to divide that up.
 - Currey: That's a good idea, but we need a higher authority to make a decision to do that. We can make the recommendation to our state supervisors with a rationale and recognition of the urgency of the moment.
- Schneider: We need to make sure that nutrient loads are included in that recommendation. That's part of the story is that loads may not be improving but they aren't getting worse.
- Davis-Martin: So we will make the recommendation that the additional loads from Conowingo will be treated as a multi-party load that includes MD, PA, NY and Exelon, which would be additional to their planning targets for the Phase III WIPs. And we will also consider future implementation beyond 2025 is likely necessary to achieve the level of effort.
 - Currey: We can bring it to PSC but we have to explain to them why we took those options off the table. We need to deal with it now, and also include that however we choose to address, the time is now even if it will take beyond 2025 to implement those reductions given the level of effort that might be required.
 - Sarah Diebel: There have to be innovative strategies developed to implement that goal that can achieve reductions beyond watershed management practices. You have to look at practices beyond standard water quality standards.
- Thompson: Let's not take the responsibility scenarios off the table yet. We are not recommending the "all basins" scenario, or the "Susquehanna only" scenario—so that leaves "Susquehanna + effective basins". We can at least say that those options are off the table because we felt that was infeasible to achieve. We can discuss how to incorporate the effective basins option as local planning targets or otherwise, but we can recommend to PSC not to use All or only Susquehanna.
 - Davis-Martin: We don't want to distribute the load beyond that. We would limit that planning goal to MD, PA, NY and Exelon.
 - Currey: We can suggest that to the PSC, but we have to explain our rationale to them along the way.
 - Davis-Martin: We need to have an approach to influence the outcome of the certification process, which might not be something the PSC has considered.
 - Currey: Our message is also that we need to address these loads now.
 - Davis-Martin: We can start addressing now, but we have to acknowledge that implementation can continue beyond 2025.
- Dianne: Don't we want the jurisdictions to be able to address Conowingo in their Phase III WIPs somehow? Can we use the cost effectiveness methodology once that is available as another way to assess responsibility?
- Spano: the PSC has charged us to try and find cost effective options.
- Heidi Bonaffon: Is it the case that all the load from Conowingo has to be addressed to meet water quality standards? If the loads are not influencing water quality, then maybe 100% of the additional loads don't have to be addressed. The monitoring tells us that the Bay may be responding better than we thought it would, so how much of a gap is really there that we have to address? How much more will we know from the WQSTM in the next month?

- Linker: That's the analysis we will be doing in October, to determine the new assimilative capacity of those loads. That might be available to review. We have a lot to do, but it's a triage question. What's the priority from the WQGIT?
 - Rich Batiuk: the estuarine model concerns me, especially the P sensitivity in the estuarine model. I ask that the WQGIT allow the modeling team to work on that, the calibration, and calculate draft planning targets with the decisions we've made so far.
- Bill Keeling: Does the WIP III provide reasonable assurance? How do I have that if I don't have certain numbers to go on?
 - McNally: The plan would be in the WIPs, and those won't be due in full till April 2019. If the WIPs had a plan for a path forward by then, we'd be happy.
 - Keeling: If we add VA and we have to reduce loads in watersheds that are dominated by nonpoint source loads, how will we do that if we are already at 99% treatment levels for ag? There will still be 90% of E3 in this local planning goal—how is that reasonable?
 - McNally: That's why we are considering the possibility of applying innovative practices with this recommendation.
- Beth McGee: Going back to the dredging plan, that provides a window to start working on federally funded projects, related to the Army Corps Chesapeake Bay Comprehensive Plan. Once that is done, there is potential to get federal funding for priority projects under this plan.
- Townley: I like the local planning goals option, especially if implementation can be take past 2025. What happens if a jurisdiction doesn't agree to the local planning goals option, what is the backup plan?
 - Davis-Martin: I think we will try it and see what happens. Plan B is the logic that we walked through today, and we will see where that leads us in the absence of this option. The backup plan will come down to the PSC if they don't like this approach.
 - Montali: In our informing of the PSC, we need to communicate two concepts: restoration may involve additional practices beyond conventional watershed practices. The other piece of the recommendation is that we will consider completion of implementation beyond 2025 in recognition of the additional effort required of the responsible jurisdictions—even though we will begin work on the problem now.
- James Davis-Martin called for final consensus on the recommendation to the PSC to recommend that Conowingo loads be addressed as a multi-jurisdictional local planning goal separate from the Phase III WIP planning targets, with the time frame for implementation considered for beyond 2025.
- Diebel: If we take Conowingo and make it a local planning goal, what happens to the decision we are making here?
 - James: The load then becomes something that is not included in the planning targets. As long as that load is accounted for in the process, I think we are fulfilling our charge.
 - Diebel: What will the graph look like with the hockey stick on the top and all-else on the bottom between the No Action and E3 level of implementation?
 - Spano: You would build in Conowingo by assuming it as already accomplished.
 - Shenk: The chart would show the 2013 loads, and would show the planning targets and expected 2025 loads as a result of addressing Conowingo and the 2010 scenario year.
- Currey: Where would you guess those three basins are right now in terms of where they are for implementation effort, so states can see how far they still need to go?
 - Shenk: Around 30-40% implementation. It does get jumpy and hard to read the plot when you add that.

- Nicki Kasi recommended adding the levels of implementation at each key year (40% by 1985, 60% by 2017, 100% by 2025).

DECISION: The WQGIT will recommend to the PSC to address Conowingo loads separately as a special case shared between the Susquehanna and most effective basins in the watershed, and additional loads from Conowingo will not be included in the Phase III planning targets.

G. Recommendations on the Draft Phase III WIP Planning Targets

Presenters

- Lee Currey, MDE/Modeling Workgroup Co-Chair
- Dave Montali, Tetra Tech/WV DEP/Modeling Workgroup Co-Chair

Materials

- Attachment D.3/G.1: [[HYPERLINK "https://www.chesapeakebay.net/channel_files/25453/g_-_09_26_wqgit_conowingo_scenarios_\(002\).pdf"](https://www.chesapeakebay.net/channel_files/25453/g_-_09_26_wqgit_conowingo_scenarios_(002).pdf)] (continued discussion from Day 1. Presentation also includes further discussion of draft planning targets)

Commented [WM3]: Getting updated presentation from Gary

Discussion:

- Note: slide 22 represents nutrient exchanges.
- Currey: This is very different from the conversation we just had on Conowingo.
- Davis-Martin: That's why I wanted us to look at this, because when we bring in N and P can be exchanged, which makes the level of effort more achievable. It doesn't have to change the previous decision we made. It should give you a better idea of your real change in level of effort.
 - Shenk: This does give you that information, with the caveat that we are still looking at the WQSTM for P. This is a preliminary finding and we have to do more analysis.
- Lauren Townley: Is there a scenario with the special cases added to Conowingo?
 - Shenk: We don't have that but I could get those numbers for you.
 - Davis-Martin: But when the special cases go back in all the numbers will go up accordingly.
- Montali: What other bars change when you take out the special cases for WV and NY? Can you see that on the graph?
 - Shenk: They call change, but it's hard to see on the graph.
 - That WV bar is huge, but when you take 30% off, none of the other lines move much since WV's load is small relative to other basins.
- Spano: If we are comparing slide 22 and slide 18. Why were the special cases removed for these calculations when those were already pulled in?
 - Davis-Martin: The planning targets method would start clean and considerations like special cases will be added to the base as we go.
 - Montali: Special cases were absolute loads but they have different values now and we have to reevaluate during the planning targets review.
 - Davis-Martin: WV might have started with 200,000 lbs. P and they may come back and request to go beyond that at whatever number it needs to be to accommodate that special case.

- Dinorah Dalmasy: How are you accounting for the N and P exchanges?
 - Shenk: The geo runs give an oxygen increase per pound reduced, for both N and P. The ratios between the two effectiveness values can be calculated to give an exchange ratio.
- Davis-Martin: when we develop planning targets, understanding that Conowingo is to be separated out, which relative effectiveness should be used for planning targets? Current conditions or 1990s?
 - The WQGIT concurred on the use of current conditions to calculate relative effectiveness values for incorporation into the Phase III WIP planning targets. No decision on which relative effectiveness to use for assigning Conowingo loads was called, due to the previous decision to remove Conowingo loads to a separate multi-jurisdictional planning goal.
 - Teresa Koon: I want to add the caveat that we have to be able to review and understand how the relative effectiveness works out to explain to the PSC.
 - Davis-Martin: Agreed, we have to be able to tie up the loose ends and present a thorough analysis to the PSC.
- Kasi: Are we double counting Conowingo with current effectiveness?
 - Shenk: The current delivery factors multiplied by the load in the watershed, is the total load coming out of Conowingo. If we want to completely discount Conowingo, we have to use the 1990s condition. We can use whatever numbers we want to use for relative effectiveness, but we have to use 1990s numbers to run scenarios to avoid double counting Conowingo for PA. The relative effectiveness is really a change in delivery factors.
- Davis-Martin: Is the Phase 5 relative effectiveness effectively the same as the 1990s relative effectiveness?
 - Shenk: Conceptually yes, but run in different models.
 - Davis-Martin: So we don't know what 1990s relative effectiveness looks like in Phase 6.
- McGee: In the progress runs, can new effectiveness values be used even though we are calculating planning targets on 1990s delivery factors?
 - Shenk: If you run PA and NY with current delivery factors, then you are counting the loads coming off Conowingo.
 - Montali: Can you pull it off at the end?
 - Shenk: It's one possible solution. In The last conversation, the recommendation was to take the load coming off Conowingo and bracket it off as separate from the other loads to address. Using the current delivery factors does count Conowingo, so we would have to avoid double counting it some way and Dave's suggestion is one way to do that.
- : Isn't it true that there are other basins outside the Susquehanna that have also changed? How do we account for that?
- Shenk: There are two reasons for the changes in relative effectiveness. One reason is changes in the model from Phase 5 to Phase 6. The other reason is changes on the ground, like the change in Conowingo conditions.
- Lee Currey asked to review slide 18 and the model change.
 - Shenk: I took the relative effectiveness values for each basin in Phase 6 (September version). Each basin had a different relative effectiveness in Phase 5 for the TMDL. I went back to those relative effective nesses and did the planning target calculation from there.
 - Currey: You are looking at a percent change on slide 18, so what is the reference point there?

- Shenk: In slide 18 the percent change is Maryland's WIP vs Maryland's planning target in Phase 5. They average towards the middle because we're assuming the assimilative capacity is the same as we calculated for Phase 5 (190 million lbs.).
 - Nicki Kasi asked for a write-up of the exact differences in methods to calculate the planning target options shown in this presentation (Attachment G.1).
- Shenk: I've drafted a new slide with methods for the planning target calculations; slide 25. This explains the graph that is shown on slide 18. We substituted phase 5.3 relative effectiveness into the hockey stick graph and generated planning targets by adjusting the straight line to meet WQ standards. Then we ran the Phase II WIPs on Phase 6 and compare Phase 6 WIP II loads to Phase 5 WIP II loads for N and P and see where that gets you based on the planning targets that we just calculated. We also have exchange rates for N and P and we found the point where N and P would be equally over or equally under planning targets.
- Davis-Martin: Does that assume a 1:1 P to N ratio?
 - Shenk: It's by percent, so NY would have to do 3.5% additional N reductions and 3.5% additional P reductions. Slide 18 shows the amount extra each jurisdiction has to do in the WIP III to address N as a transformed P load. We will be doing a presentation at some point to make all this clearer for the exchange rates. There are a lot of components to these numbers. We have watershed delivery factors—pounds that reach the Bay per pounds delivered to the Bay, and then we have estuarine effectiveness factors, which is effect on DO for the pounds delivered. We also have changes in the model and changes in the amount of loading that it's responding to, with better quantification of shoreline loads, which shows more P loading happening but P is less important per pound than it has been in previous models. That affects the N:P exchange rates, where doing P reductions is less important relative to N now than it was before. We also have changes in hydrodynamics and such. For instance, Potomac is much more effective above fall line and we have to do more analysis to understand why that is the case. We are also following the published literature, which has refined its views on denitrification in different river sizes and preferential delivery in different watershed conditions and land uses.
- Katherine Antos: I still don't know why we are moving with 1990s vs current condition relative effectiveness as it relates to planning targets.
 - Shenk: Using the current ones include Conowingo infill loads. If we take Conowingo off as a separate chunk and deal with it in other ways, then we have a double counted load for Conowingo. There is a way to do it both ways. You can assign responsibility based on current relative effectiveness (hockey stick), and use the 1990s number to calculate the actual planning targets. We will have to use 1990s to calculate the planning targets and do scenario runs (necessitated by the decision to bracket out Conowingo loads), so the only decision here is what number to use for the hockey stick.
- Currey: We are assuming the Phase II WIP with Conowingo to determine what each jurisdiction is responsible for—that's the assumed assimilative capacity.
- Davis-Martin: If we use the current conditions relative effectiveness to develop the hockey stick curves, use that to develop planning targets, and go through that same process for the Conowingo basins but replace the Conowingo basins with the 1990s relative effectiveness.
 - Shenk: Simpler. We can run the planning targets with current relative effectiveness. That will generate some load, which for the Conowingo basins that number will be too high. We will take the too-high numbers and subtract out that bit using the 1990s delivery factors for Conowingo.

Commented [WM4]: Getting updated presentation from Gary

- Spano: We would be post-processing to take Conowingo off the table.
 - Shenk: Right
 - Davis-martin: That's for planning targets and all future progress, right?
 - Gary: Right, it would have to be
- Matt: The delivery factors for the watershed now is based on Conowingo. How do we make sure that progress reported matches the effectiveness that SPARROW gives us?
 - Shenk: This came out of the Hydroqual modeling that there is a constant delivery factor, over different levels of input. Where PA implements a BMP, they will get a credit that reduces their edge of stream load by 10 lbs. As it goes through the Conowingo, there are 10 lbs reduced to the Bay. However, if we take out that chunk that Conowingo contributes, then we've also taken out half of that reduction. You take out 5 lbs., but that's still consistent with the methods for setting the planning targets that we just described. Those 5 lbs. taken out go the interstate commission on Conowingo, I guess. When progress is reported, whatever load gets taken off the effective basins for progress gets re-distributed to the interstate commission that's working on the Conowingo local planning goal.
- Davis-Martin: For planning targets, we have 2010 as the base year for E3 and No Action, with relative effectiveness as described above by Gary. We will retain the 20% difference between most and least effective basins, and the hockey stick will stay as it was for the TMDL. Conowingo will be set off to the side as the local planning target. These are the recommendations that we will bring to the PSC to approve building the planning targets around. Special cases will be determined after that as needed.
- Montali: Adding the scenarios with who is responsible for Conowingo in the local planning goal recommendation Dave: And the other Conowingo issues we discussed: the scenarios with all responsible, and MD/VA/WV being voted out.
- Davis-Martin: These are the recommendations that we expect to be incorporated in calculations for the draft planning targets. Then we do the 4-month assessment and review of the draft planning targets
- Koon: Those draft planning targets will be on the recalibrated model?
- Batiuk: We are about a year and a half behind the timeline we agreed on in 2012 to complete the Phase 6 Watershed Model. All the final changes as a result of the fatal flaw review and resolution process were only incorporated into Phase 6 last Thursday (Sept 21), which was originally supposed to happen about a month ago (end of August). That model feeds the WQSTM, which gives us the draft planning targets. We could cut corners in the next three weeks to get draft planning target numbers to the PSC, but I don't think we're comfortable with that plan since we would not get thorough analysis and review of the recalibrated model and scenarios. We really need the extra time to get a complete recalibrated WQSTM and have time to QA/QC the results from the calibration. Especially with regards to the change in nonattainment in some segments we are seeing from the new model—that needs to be thoroughly vetted. We understand what we need to do, so some of the team needs to work with Carl Cerco on the new WQSTM to calculate and really understand the new assimilative capacity. That's one request we are taking to the PSC, to give us the time necessary to nail that down.
- Montali: That process of digging into the estuarine model also includes the process of re-evaluating the geo-efficiencies.
 - Linker: it could, if we see reasons for change. We'd have to determine if redoing the geo-efficiencies is necessary.
 - Montali: What is the process for making that determination? Would you have time to do that?

Commented [WM5]: This is about the transition point between the planning targets discussion and the timeline discussion. Move the following notes to item H (timeline and process)?

- Shenk: What's driving this is the Potomac above fall line. We could run that to see if there is a significant change. If we do see a significant change in Potomac above fall line, then we would have to rerun the model.
- Lew: What we have on the table:
 - Get WQSTM from Carl Cerco, run all the key scenarios, check to see if geo runs have to be rerun—if that's needed that would take about half of October. We also need to look into assimilation capacity for Conowingo. We need to assess the assimilation capacity for Climate change, and update analyses for 0.17 M rather than 0.3 M sea level rise. Other analyses on the table include doing the sensitivity analysis for tidal wetland loss at different levels of sea level rise.
 - Doing recalibration of the WSM Phase 6—can be separate from the Phase 6 WQSTM recalibration—the Phase 6 WSM has an overall 1% increase in loads, we can have Carl feed that into the WQSTM and assess attainment for that during October.
- Batiuk: We have more work to investigate the numbers we saw today, which takes priority over getting the WSM recalibrated.
- Koon: So when would we receive final draft planning targets, if it will take longer to calibrate the Phase 6 WSM?
 - Batiuk: Are we comfortable with having non-recalibrated planning targets for the PSC that might be different from the final numbers?
- Kasi: How long will it take to recalibrate, and how different will the numbers be pre and post recalibration?
 - Shenk: It is possible to recalibration the model in 4 weeks, but ideally it takes 8. We can do the calibration in 6-8 weeks from right now. We have an estuarine model now that we can use to assess assimilative capacity, and then we can present numbers to the PSC that we understand.
- Batiuk: After calibration of both models, what changes?
 - Shenk: Hard to say, but overall loads won't change much. We have some uncertainty in DC and the Potomac that might change with recalibration. The levels of effort might change, and we can dig into that and decide whether the changes in the level of effort is worth it.
 - Montali: We need a couple more months to solidify our numbers and analyses. December might be a better time to do this than October.
- Davis-Martin: We should recommend to the PSC that our overall schedule is postponed by 2-3 months. We would ask the PSC to postpone their retreat till December.
 - Jim George: Rather than that, that's hard to do.
 - Kasi: Could we poll them to see if they could have a meeting the 12th and 13th. We don't want to have nothing to show them in October.
 - Davis-Martin: We could give updates and briefings in late October, but we can't expect them to make a decision based on what we've seen today.
- Koon: We need the PSC to approve of some of the recommendations we've made, but not all of them—the Conowingo approach, scenario year for planning targets.
- McNally: That's a
- Currey: That we need to redo the geo runs is a big change, and we need to take those numbers to the PSC. We can brief them on progress and preliminary recommendations based on what we've seen so far in October, rather than pushing it completely to December.

- Davis-Martin: Assimilative capacity is one of the questions we have to continue to investigate. We that we won't be able to take that analysis to the PSC
- Currey: the assimilative capacity has been 190 mill lbs. for decades, is it a reasonable assumption to think that it would stay much the same? We have good momentum.
 - Batiuk: We can take one day to brief the PSC, but we need more time to get the analysis finalized to bring the PSC good information. But we can take October to start teeing up the information for them that we bring to finalize in December.
- Davis-Martin: We will have planning targets release from October 31 to December 15, and everything slides accordingly, including the review period and the release of the final.
- Spano: We do need to make sure that we keep the 4-month review process we agreed to have.
- Davis-Martin: And at least a year between the release of the planning targets and the deadline for the Phase III WIPs.
- Batiuk: I suggest we take that back to the PSC—they have to approve this proposed change in the schedule.
- McNally: We need to address that proposed delay in our response to the memo from Secretary Grumbles. It's a good idea to bring to the PSC what we have in October. And this is a 2 or 3-month delay?
- Davis-Martin: it's however long we need to get the analyses done and get vetted draft planning targets to the PSC.
- Batiuk: We need to make sure the numbers are right and that we understand the analysis. We have to make sure this is right.
- Spano: When will we approve of the final suite of modeling tools? Didn't the revised agenda take the approval of the Phase 6 modeling suite off the table for today?
 - Davis-Martin: We will be able to approve of that sometime between now and December.
 - Batiuk: We will know sooner with the WQSTM.
- Linker: That's a 6 week change in schedule, not 3 months.
 - Davis-Martin: it's up to the Modeling team to recommend how long you need to get all the needed analyses done.
 - Currey: The geo runs results are important to know in order to make other recommendations on the jurisdictions' load responsibilities. That can be turned around pretty quickly if we determine that a re-run is needed.
- Davis-Martin: We can recommend a 6-week slide in the schedule from the MPA schedule, from Oct 31 to December 15, which will slide the finalization of the Phase 6 modeling suite and the release of the draft planning targets by 6 weeks.
 - McNally: How does that affect the 2018-2019 milestones? We were supposed to have draft planning targets by the end of October to help inform the 2018-2019 milestones. Now that those will be released in December, I don't expect that draft milestones will be available by the original time we had planned.
 - Suzanne Trevena: I will be getting a Milestones workgroup call convened soon, and we will add that to the agenda for discussion.
- Spano: I think we need to let the Modeling workgroup consider the 6-week change in schedule a little bit before committing them to that timeline.
- Jim George: Let's confer with Rich, Lee and Nick before committing to the 6-week delay recommendation. We can come back in a few days to confirm that recommendation.

- Davis-martin: Ok, we can table that recommendation pending confirmation with key decision-makers.
- Davis-martin: The data visualization piece will be at the first October call. Decisions from today will be sent out via email for review.
 - Spano: The email should also include the final decision on extending the schedule by 6 weeks.
- Davis-martin: We will reschedule the first October call will be the 12th from 1 PM to 4 PM.
- Announcement: John Schneider is retiring. The new DE signatory member will be Hassan Mirsajadi, and the DE alternate will be Chris Brosch.

ACTION: The WQGIT will review the findings and products from the CBP Modeling team over the next 6 weeks and will make a recommendation to the PSC on adoption of Phase III WIP Planning Targets at the joint WQGIT/Modeling Team meeting on December 4-5, 2017.

ACTION: The CBPO Modeling Team will do new geographic isolation runs on the recalibrated Phase 6 WQSTM and calculate assimilative capacity of the Bay using the Phase 6 model.

ACTION: The CBPO Modeling Team will investigate the effects on assimilative capacity of 2025 climate change projections and Conowingo infill conditions at the 1990s and current condition, and will brief the WQGIT on any changes in relative effectiveness, assimilative capacity, and effects on draft planning targets which may arise from these new analyses.

DECISION: The effort/effectiveness curve for point source loads will remain identical with the curve used in establishment of the TMDL. Any additional effort due to changes in the Phase 5 - Phase 6 transition, climate change or Conowingo will be added to the all-else line.

DECISION: The WQGIT will retain the 20% slope between most and least effective basins on the effort/effectiveness graph, in order to assign responsibility for the Phase III WIP planning targets.

ACTION: A briefing on tools available for review of the geographic isolation runs will be provided to the WQGIT at an October conference call.

DECISION: The Phase III WIP planning targets will be calculated with current relative effectiveness values. In order to avoid double-counting Conowingo in both the local area goal and the Phase III WIP planning targets, the difference between 1990s relative effectiveness and current conditions relative effectiveness will be used to subtract out Conowingo loads from basins that are affected by Conowingo.

H. Timeline and Process for Reviewing the Draft Phase III WIP Planning Targets

- Note: This agenda item was postponed to the October WQGIT conference calls due to time limitations.